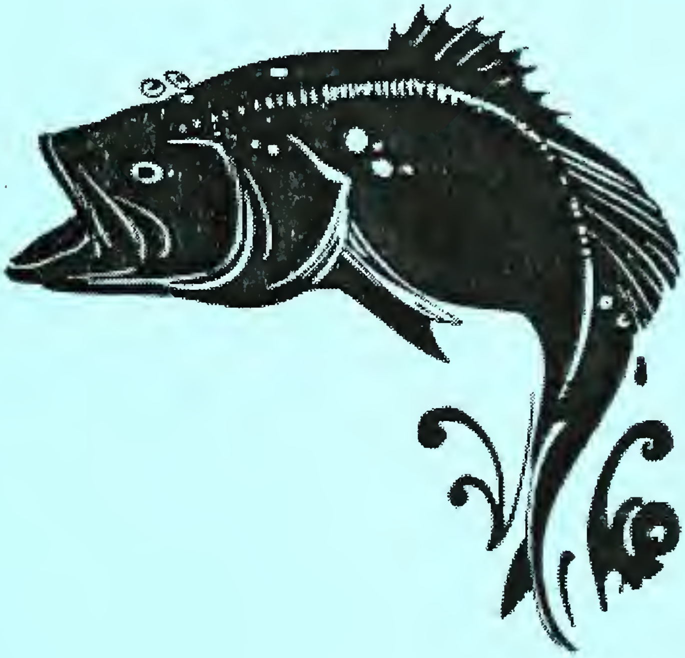
ANNUAL REPORT
1996-97



LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

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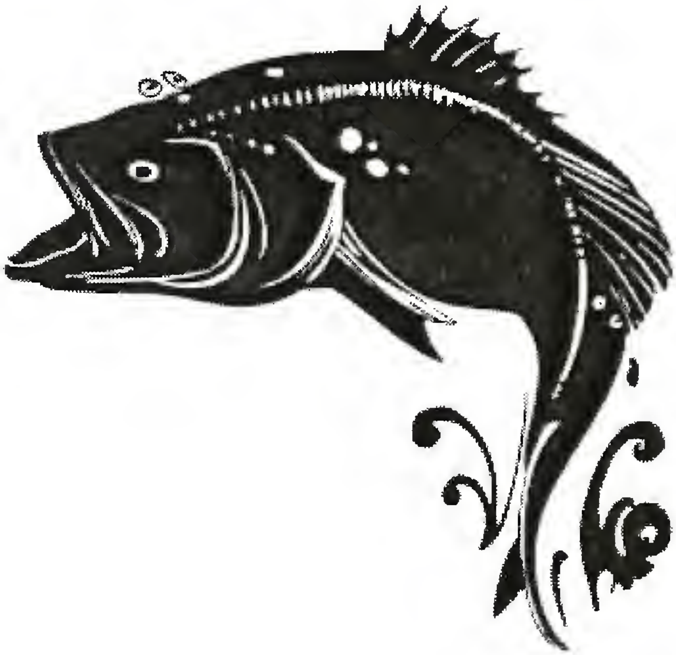

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

WILDLIFE & FISHERIES DEPARTMENT LOUISIANA

STATE OF LOUISIANA

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Clyde Kimball, Deputy Secretary
Ronald Couvillion, Undersecretary
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Bennie Fontenot, Inland Fisheries
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The Louisiana Department of Wildlife and Fisheries is charged with the responsibility of managing Louisiana's abundant natural resources . . .

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OFFICE OF SECRETARY

The Office of Secretary is administered by the Department's chief administrative officer, who oversees all scientific operations as organized by the Office of Wildlife and the Office of Fisheries. The Secretary also has ultimate authority over the operation of the Department's fiscal and business matters as administered by the Office of Management and Finance.

Support operations of the Department report directly to the Secretary. These include two divisions — Enforcement and Information and Education — and two promotional bodies — the Seafood Promotion and Marketing Board and the Fur and Alligator Advisory Council (see Fur and Refuge Division) — as well as the Department's Legal Section.

The Deputy Secretary is second-in-command and serves as chief administrative officer in the absence of the Secretary. The Deputy Secretary's responsibilities are assigned by the Secretary and include work with the Legal Section in development of wildlife and fisheries laws and update of regulations. This responsibility also includes development of packages of Department-sponsored bills for annual presentation to the state Legislature.

The Deputy Secretary is also responsible for direct oversight of the Enforcement Division.

ENFORCEMENT DIVISION

The Enforcement Division is responsible for enforcing laws enacted by the Louisiana Legislature relative to fish and wildlife resources and boating safety regulations, as well as federal regulations pertaining to migratory birds and endangered species.

Agents of the Enforcement Division issued 16,743 citations during this fiscal year. In addition, officers worked with other law enforcement agencies to provide public safety and assistance during local emergency situations.

In keeping with the Division's standard approach, special emphasis was placed on enforcement of deer and waterfowl regulations in 1996-97. Both species have long been the most favored for hunting in the state. Hunter participation in waterfowl hunting has increased due to more liberal bag limits (6 ducks and 10 geese) and longer season length (60 days) as waterfowl numbers increase.

Boating Law Enforcement was strengthened in the Enforcement Division during fiscal year 1996-97, expanding from enforcing safety on the water and encouraging proper boat handling to conducting boater education classes for the boating public in Louisiana.

The Wildlife and Fisheries Law Enforcement Academy maintained its high standards. Because of the level of professionalism and preparedness offered by the Louisiana program it is generally considered one of the best of its kind in the nation. Following training, many officers are organized into special force units. Each is dedicated to a particular enforcement issue. This year the academy has expanded to include the training of Conservation Officers.

Deer

Deer hunters numbered more than 180,000 and harvested an estimated 234,700 deer. Enforcement agents observed better compliance among hunters this fiscal year. Deer decoys were used with success in cases related to night hunting, shooting from public highways, and incidental poaching. Unmarked units continued to be effective against road hunters and gave agents a better chance of apprehending poachers in many situations.

Waterfowl

The waterfowl enforcement training course instituted in 1993 continued as a standard entry in agent training. It provides specialized training in waterfowl identification and enforcement concerns in the southwest marshes and other waterfowl habitat. This and other measures have enhanced effectiveness of enforcement of waterfowl regulations. National migratory bird managers instituted protective measures for waterfowl in 1986. It is apparent that public education concerning depleted waterfowl populations and improved hunter compliance have worked hand in hand. Hunter ethics are improving as a result. Numbers of waterfowl actually migrating to this state for 1996-97 winter were at high levels. The U.S. Fish and Wildlife Service announced that according to the fall flight index numbers of birds along the migratory route were increased over last year's numbers.

Boating Law Enforcement

In fiscal year 1996-97, the Enforcement Division incorporated traditional law enforcement with proactive boating education. Boating education classes were designed to teach safety and responsibility on the water. More than 2,300 Louisiana citizens completed boater education classes taught by wildlife agents and trained volunteers. Legislation requiring mandatory boater education will be sought in the future and if enacted will induce greater participation in education courses.

Enforcement of boating regulations remained a priority and more than 4,200 boating violation citations were issued during fiscal year 1996-97. Emphasis remained on the alcohol impaired boat operator. Boating under the influence (BUI) detection continued to improve. In addition to enforcing BUI laws, wildlife agents strictly enforced careless and reckless operation statutes, concentrating on the increasing number of personal watercraft.

Search and Rescue operations saved lives and minimized human suffering in unfortunate accidents. Agents are currently working to improve communications and reduce response time to arrival at areas of operation.

Training Program

Cadets receive a minimum of 25 weeks of training. The Wildlife and Fisheries Law Enforcement Academy graduated 35 new officers in the 1996-97 fiscal year. A training facility constructed at Wildlife and Fisheries headquarters in Baton Rouge in June 1993 now provides classrooms and lodging facilities for both cadets and in service officers returning for additional training.

Most officers are certified in ten areas in courses conducted by experts from various agencies: standardized field sobriety testing (LDWF), chemical testing for intoxication (State Police), DWI detection (Highway Safety Division), tactical police driving (Baton Rouge City Police), Louisiana safe drivers' course (Department of Public Safety), basic marine theft (Mississippi Fish and Game), basic defensive tactics and collapsible baton techniques (LDWF), wildlife agents aquatic survival (LDWF), peace officers standard training (Louisiana State Police), and Chemical Weapon Indoctrination and Certification (LDWF).

The Division makes advanced training available to selected officers in such areas as drug identification in the field, marine theft, boating accident investigation, and diving/underwater law enforcement.

Special Force Units

The Oyster Strike Force (established in 1990) and Salt Water Enforcement Patrol (SWEP, established in 1983) continued to successfully enforce oyster and saltwater fishing regulations. These units work with the Division's pilot-agent and airplane to monitor commercial and recreational fishing activity along Louisiana's coastline. SWEP officers were also involved in several search and rescue operations.

The Covert Unit continued to develop substantial cases involving illegal sale and purchase of game, fish and protected species. Working in conjunction with the Special Investigations Unit, they have focused on illegal sales of spotted seatrout and red drum and have initiated studies to create technology which will allow officers to reliably identify different fish species from filets and fish tissue samples taken from suspected violators.

Members of the Wildlife Enforcement Dive Team (begun in 1990) who had achieved Dive Master Certification sought more advanced training in 1996-97. The team was expanded to 15 members.

The State Strike Force consists of two officers from each of the nine Enforcement regions and is designed to provide immediate, specialized additional manpower whenever and wherever needed. The Strike Force continued its concentration on commercial fishing violations, illegal interstate transport of commercial seafood products and theft of boats and marine equipment. Efforts resulted in better compliance with commercial regulations and the recovery of stolen boats and other property valued in thousands of dollars.

Louisiana Operation Game Thief, Inc., a program providing cash rewards to anyone reporting information which results in the arrests of wildlife violators, recorded more than 2,000 calls to its 24-hour, toll-free number. In fiscal year 1996-97, OGT paid over $8,000 in cash rewards to individuals who reported outdoor outlaws. This anti-poaching organization celebrated its 13-year anniversary in 1997 and has now paid in excess of $120,000 in rewards since July 1984.

INFORMATION AND EDUCATION DIVISION

The Information and Education Division has a dual function, both aspects dedicated to public outreach. The Division works to inform the public of Department research and resource management programs related to the numerous recreational and commercial activities in the state. The Division also provides diverse education opportunities pertaining to conservation of wildlife and fisheries resources and outdoor recreation skills.

The Division is divided into two sections, the Information Section and Education Section.

INFORMATION SECTION

Information Section staff efforts were dedicated to three major operations: News and Media Service, the *Louisiana Conservationist* magazine, and Publications. In addition, a new Merchandising Unit was established in June 1995 to generate revenue to help fund the *Louisiana Conservationist.* Section activities also included technical guidance and assistance to Department administrators and other divisions. Professional expertise was also provided on copy writing, editing, photography, printing, and publishing.

News and Media Service

A total of 310 news articles (297 releases and 13 features) were made available to the public during Fiscal Year 1996-97. News covered all Department activities including wildlife and fisheries research and management, land management and purchases, enforcement, outdoor education, regulatory action, seasons, law making, budget management, and information regarding native Louisiana species.

News is distributed via two standard venues. A weekly packet is mailed to more than 400 media representatives, including every television station, radio station, newspaper, and outdoor periodical in the state. These releases are then formatted as a newsletter and mailed to more than 1,000 interested groups and individuals, including commercial fishermen, sports organizations, citizen conservation groups, scientists with other resource units, public officials, universities, and Department offices and field locations.

News and Media Service staff members conduct press conferences and media events as necessary to announce land purchases, contributions from the private sector, ground breaking on major construction, and Department programs.

Louisiana Conservationist magazine

The *Louisiana Conservationist* magazine is the state's premier magazine for outdoor activities and Wildlife and Fisheries programs and projects. In January 1997 the magazine hit a milestone with 75 years of continuous publication, never wavering from its original mission to inform and educate the public on outdoor related issues.

The 36-page, full-color magazine is published six times a year, including the annual Wildlife and Fisheries calendar published as the January/February issue. The calendar covers all aspects of the outdoors including season dates, species breeding and migration, national history events and holidays. The magazine's current circulation averages 39,000. It is funded solely by subscription revenues and merchandise sales. A new eight-page supplement was added to the magazine to advertise merchandise sold through the magazine and department.

Merchandising Unit

The Merchandising Unit was established to provide a supplementary source of revenue for support of the *Louisiana Conservationist* and to consolidate all marketing handled by the Department. It handles sales and distribution of all items formerly sold through other Divisions and Sections. Several new items were added to the magazine's merchandise line including a limited edition, hand-crafted knife commemorating the magazine's 75th anniversary. Other new Department publications were also added to the unit for distribution.

Publications

Information Section staff members publish Department pamphlets each year providing needed regulatory information to sportsmen, trappers, alligator farmers, commercial fishermen and others. These pamphlets include the hunting regulations, fishing regulations, waterfowl hunting regulations, trapping regulations and turkey hunting regulations. A new commercial fishing regulations pamphlet was introduced this year.

A new publication that was finished this year was the long awaited wildlife viewing guide. The Information Section staff aided other divisions in all aspects of publishing the 114-page book, including design, format, pre-press and printing. The book included over 90 wildlife viewing sites throughout Louisiana and is distributed through the Merchandising Unit.

The Section frequently assists other Department personnel in printing and reprinting booklets for the public. During the fiscal year, updates were begun on six books.

EDUCATION SECTION

The Education Section has as its focus five education programs: Hunter Education, Aquatic Education, Boating Education, Wildlife Education and Special Programs. These cover species and habitat management, ethics in the woods, safety, regulatory measures, and sporting skills. In addition, they provide personal learning experiences for many beginning outdoor recreationists and advanced training for the committed outdoor enthusiast. Special Programs includes offerings for specific targeted audiences, such as workshops, short courses and classes for students, teachers, women and families.

A full staff of Department educators manage programs across the state by dividing it into nine districts. A great deal of effort is dedicated to training a corps of volunteers who in turn offer instruction throughout the year at many locations. Instructors include teachers, youth group leaders, sport group organizers, and other interested adults.

Hunter Education Program

•State law requires anyone born on or after Sept. 1, 1969, to complete a hunter education course prior to purchasing a hunting license. The primary focus of the Hunter Education Program is certification of young hunters. During the year, hunter education staff sponsors and/or assists volunteer instructors in conducting classes for numerous civic and sportsmen groups, as well as schools and sheriff's offices. There were a total of 1300 active instructors assisting or teaching the basic course. A total of 517 student courses were conducted resulting in the certification of 19,259 students.

Time and expertise of volunteer instructors dedicated to teaching the basic certification course serves as in-kind state match for a federal grant. This satisfies the federal eligibility requirement for Louisiana Department of Wildlife and Fisheries to receive funding for the Hunter Education Program.

•Instructor Certification-Hunter education staff conducted 10 instructor certification courses certifying 130 new instructors. A volunteer instructor workshop for 133 participants was held February 14, 15 and 16 1997 at Camp Grant Walker in Pollock. The purpose of the workshop was to update volunteer instructors on new methods of teaching and available materials. The sessions included ethical trapping, survival, snake identification, conservation and knife making.

•Shooting Ranges-Hunter Education staff members are responsible for the construction and operation of public shooting ranges. Public shooting facilities are managed at Bodcau, Sherburne, and Pearl River wildlife management areas, Natchitoches shooting range, and Alexander State Forest Environmental Education Center in Woodworth.

A new environmental education project was initiated and secured through a Federal Aid Grant from U.S. Fish and Wildlife Services. The project consists of a 150 seat capacity auditorium/classroom, a shotgun shooting facility for training of hunter education students and an archery range. The facility will be constructed on the Waddill Urban Refuge in East Baton Rouge Parish. Total cost of the project is $200,000.

Program for Disabled-Hunter Education participated in a disabled "outreach" program by working with the Louisiana Center for the Blind at Ruston. The co-sponsored program resulted in 33 adult blind students participating and completing a two-day volunteer instructor course.

Youth Challenge

Once again, Louisiana's youths did exceptionally well in outdoor skills when they competed nationally. The Youth Challenge began at the state level on March 23-25, 1997, when qualified students tested their skills in riflery, archery, shotgun and muzzleloader shooting, orienteering, wildlife species identification, and written mastery of the material. Two junior and two senior teams were selected to compete in the national competition sponsored by the National Rifle Association. These teams did Louisiana proud by placing high in the competition held in New Mexico.

Bowhunter Education

There continues to be a growing demand for bowhunter classes. In striving to provide this service to the public, courses are conducted by staff and volunteer instructors. During this reporting period three bowhunter instructor courses were conducted certifying 25 new instructors. There were 77 student courses conducted for the general public certifying 2,256 individuals. Although no certification requirements are mandated by the state for bowhunting, several National Refuges have mandated bowhunter education as a prerequisite to hunting on their facility.

Hunting Accidents

There were 13 hunting accidents reported during the 1996-97 hunting season. The accidents consisted of 4 fatalities and 9 non-fatal. Since mandatory hunter education began in 1985, the accident rate has declined significantly.

Aquatic Education Program

The Aquatic Education Program is designed to acquaint youngsters and adults with the sport of fishing, management of fish species, and the science of Louisiana's diverse aquatic habitats.

Fishing Clinics

Aquatic Education staff sponsors or assists with clinics that attract individuals in an effort to introduce youngsters and adults to the sport of fishing,. These clinics covered topics such as fish identification, safety on the water, sporting ethics, casting, knot tying, and lure selection.

Bossier and Caddo Parish School Aquatic Education Program

Most fifth-grade classes in Bossier and Caddo parishes completed a unit on aquatic education during the 1996-97 school year. The classes utilized materials such as "Let's Go Fishing," Wetland Activity Guide, and Resource Management. At the conclusion of the school year, fishing clinics were arranged for the students. The full-day clinics included sessions on fish identification, fish biology and anatomy, casting, and sport fishing. Clinics were three days a week for six weeks. Approximately 7,500 students benefitted from the clinic.

Terrebonne Parish Schools Aquatic Education Program

This program is similar to the program conducted in Caddo and Bossier Parishes. The students were bused to the Pointe-au-Cheine Refuge for field instruction. Approximately 2,000 students attended the field portion of the clinic.

Marsh Maneuvers

Marsh Maneuvers is an intensive three-day wetlands education camp for senior 4-H students to learn about the state's coastal wetlands first-hand. They are introduced to the subtle and dynamic forces at work in Louisiana's coastal marshes in a way that leaves a lasting and positive impression. Sponsors include LDWF's Aquatic Education Program, Louisiana State University/Cooperative Extension Service and Sea Grant College Program, and Department of Environmental Quality and Barataria-Terrebonne National Estuary Program. This program is conducted at the department's marine lab on Grande Terre, in Jefferson Parish. Each week, for four weeks, 16 4-H'ers attend the camp.

The following Aquatic Education programs and activities involve sponsorship and distribution of education materials

•"Resource Management" is an interactive video that explores the rationale and methods used by fisheries biologists in collecting samples of fish for study and management. Following resource management workshops, educators in middle schools and high schools utilize the teaching activity in their curriculum.

•A National Audubon Society poster, "Wetlands — Wonders Worth Saving," was once again made available to teachers and youth group organizers. LDWF Aquatic Education Program developed an accompanying guide of educational activities concerning the food chain and other dynamics of this intricate system. This educational unit is one of the most highly sought materials developed by the LDWF Aquatic Education Program.

•"Let's Go Fishing" is an activity guide developed for upper elementary school students and covers topics such as aquatic environments, the animals that occur in these environments, fish species identification, food chains, and how to fish for sport.

•"Ready, Set . . . Go Fishing" is an Aquatic Education Activity Guide for kindergarten through third grades. The publication introduces youngsters to fish identification, foods, habitat, and fishing skills.

•Education Corner is a regular column for science teachers published by the *Louisiana Conservationist*, the Department's bi-monthly publication with a circulation of 42,000. The educational topics include wetlands, fisheries management, and other aquatic issues.

•Fish I.D. Guide-An identification guide to common fresh and marine sport fish in Louisiana was distributed to all clinic participants and educators who conduct aquatic education units in their classes.

•Lure Packets-Packets of sport fishing lures are distributed each year. The lures are seconds produced and donated by Sabine Manufacturing and packaged by aquatic education staff and volunteers or by handicap organizations.

•Loaner Program-A rod and reel loaner program continues at the Vernon Parish and St. Mary Parish Libraries. This program provides rods and reels to the library. The library then allows youngsters to check out a rod and reel, just like you would a book. After the individual finishes the use of the equipment it is returned to the library. This program will give families the opportunity to enjoy the experience of fishing without purchasing the equipment. Hopefully, their experience will be enjoyable and they will purchase their own equipment and continue to enjoy a popular sport.

Boating Education

The Information and Education Division Boater Education program was expanded into eight new parish school systems during fiscal year 1996-97. Teacher in-service training workshops were conducted at various school districts across the state. New instructors certified numbered 103, primarily at the middle school level where lifetime skills can be emphasized in the physical education curriculum. This number also includes volunteer instructors who teach public courses in their local areas.

Informational contacts have stimulated interest by additional parish school systems, parish sheriff departments and other governmental agencies. Renewed contacts with existing Boater Education instructors have resulted in several classes conducted and many others planned.

Certifications-Almost 3,200 Boater Education students were certified this year and that number should continue to increase as our newly certified instructors begin programs in their schools. Several thousand young people who attended Boating Safety programs were presented with materials, visual aids and other assistance provided by us through Greenwing Days, 4-H meetings, safety seminars and various school and industry-sponsored functions. Efforts will continue to access the school systems and present our message of safety afloat to the large numbers of young people who participate in boating on the lakes, rivers and waterways of Louisiana.

New legislation was passed providing for the Louisiana Department of Wildlife and Fisheries and the State Department of Education to work cooperatively in developing boating safety programs for public schools.

Wildlife Education/Project Wild

Wildlife Education Programs - Five Wildlife Educators prepared and presented a variety of wildlife programs to grades K-12 in public and private schools, and youth and civic organizations. The programs developed by the educators are designed to educate the audience about Louisiana's diverse wildlife resources and the Department's resource management activities. Educators also presented hunter and boater safety programs at civic clubs, sportsman organizations and safety meetings. They attended several teacher conventions where they received training and materials as well as set up and manned displays promoting the Department's many education programs and opportunities. The demand for services, classroom presentations and teacher enrichment workshops continues to exceed the manpower capabilities of this section.

Project WILD (Wildlife in Learning Design) is a national, award-winning conservation and environmental education program composed of instructional workshops and supplementary curriculum materials for kindergarten through high school teachers. These workshops are exciting, involving, productive, and professional experiences which fully prepare participants to teach the new material. Project WILD activity guides are provided to teachers who participate in Basic and Aquatic Project WILD workshops.

Workshops - During 1996-97, 19 Basic WILD instructor workshops were conducted with 376 participants and 13 Aquatic WILD instructor workshops were conducted with 246 participants. Since May 1989, more than 7500 educators have been provided Project WILD materials. As a result, Project WILD material is used by trained educators to provide wildlife and conservation education to an estimated 157,500 Louisiana students. Project WILD also certified eight new workshop facilitators to enhance the volunteer training capabilities of the program.

Special Programs

A number of new and ongoing programs played a major role in accomplishing the Education section's goal of providing new user groups with outdoor education opportunities.

FUN Camp - During the year, the education staff developed and conducted 4 parent/child outdoor education weekends referred to as FUN Camp (Families Understanding Nature). They provided the opportunity for 60 families to participate in the camps conducted at the Department's Outdoor Education Center located at Woodworth, La. The camps received national media coverage which generated several inquiries from other states desiring to create similar programs.

Becoming an Outdoors-Woman (BOW) - BOW has become a tremendous success, having full sessions at all workshops. This program introduces women to the outdoors by providing the training needed to participate in a variety of outdoor activities. Over 250 women in 1997 attended short courses on a variety of topics designed to teach new ways to enjoy the outdoors and how the Louisiana Department of Wildlife and Fisheries manages our natural resources.

Wetshop, a teacher workshop, introduces classroom teachers to environmental topics related to Louisiana's coastal areas. Training and materials are provided for the teachers to take back to use in their classrooms. Teachers are trained in activities and resource management issues relevant to Louisiana.

Partnership Programs - The Education Section, with support from Ducks Unlimited, Wild Turkey Federation and Safari Club International, conducted workshops for teachers during the year. These programs were conducted at the Department's Outdoor Education Center. Teachers got hands-on training in resource management issues that pertained to Louisiana.

Scout Programs - Educators have been involved in developing programs and working with scout troops to assist them with outdoor education and earning of merit badges. Scouts get training in wildlife and fisheries careers and are schooled in ways that help them earn merit badges in conservation, ethics, outdoor skills, hunter safety and resource management.

National Hunting and Fishing Day - The Education Section also plays a major role each year in the planning and coordinating of National Hunting and Fishing Day activities across the state. Families celebrate the bounties of Louisiana outdoors in various communities across the state. Numerous activities and informational displays are manned by staff and volunteers to stimulate interest in a variety of outdoor activities and inform the public of the services and accomplishments of the Department.

Louisiana Seafood Promotion and Marketing Board

The responsibility of the Louisiana Seafood Promotion and Marketing Board is to strengthen and expand Louisiana's commercial fishery-related industries and cultivate new markets for the state's seafood products.

Other general areas of responsibility include: efforts to increase overall contribution of the commercial seafood industry to the economy of the state; development of a broader consumer base throughout the United States and abroad; maintaining and increasing levels of production and dockside prices for Louisiana seafood products; creation of jobs in the fishing and processing sectors; increasing the economic impact of the industry through further value-added processing; and promoting higher standards of product quality for the entire producing, processing, and marketing segments of the seafood industry. The Board also serves the general public by providing greater product awareness, information about preparation, and education on the benefits derived from seafood consumption. The Board also conducts special product promotions for retail and food service operations.

Fur and Alligator Advisory Council

The responsibilities and accomplishments of the Fur and Alligator Advisory Council are included in the section discussing furbearer programs of the Fur and Refuge Division.

OFFICE OF MANAGEMENT AND FINANCE

The Office of Management and Finance oversees the management and financial operations of the Department. The Office is administered by the Undersecretary who directs and is responsible for accounting and budget control, contract management, program analysis and management, personnel management, information processing systems, licensing and boat registration, economic analysis, procurement, and general administrative services.

These responsibilities are organized as seven sections: Fiscal, Licensing/Registration, Personnel, Socioeconomic Research and Development, Computer, Purchasing/Administrative Services, and Property Control.

FISCAL SECTION

The fiscal section is responsible for the development and implementation of all financial operations of the Department. The primary objective is to assure that financial activities are handled in compliance with standard accounting practices and in accordance with all applicable state and federal laws and regulations.

The Fiscal Section includes the following functions: budget, accounts payable, auditing, payroll, financial reporting, federal aid, revenue receivables and classification, and fund management. The fiscal staff works with the Undersecretary in financial planning and analysis as well as in the areas of expenditure control and resource allocation.

In addition to the accomplishment of routine duties, the Fiscal staff also completed the following activities during the past year:

* Implemented performance planning and review for staff development and pay increase justification

* Attended these meetings of national organizations: U.S. Fish and Wildlife Service Federal Aid Coordinators Training, Conservation Business Managers Association

* Revised and centralized the management and processing of professional, personal, and consulting service contracts

* Conducted in-service training for statewide program staff relative to processing travel, time and attendance, payables, and other OMF functions

DEPARTMENTAL FINANCIAL STATISTICS

The following statistics were obtained from the Department's annual budget and from annual financial statements prepared by Fiscal staff.

1996-97 Department Expenditures By Category

$ 25,206,215	Personal Services
$ 11,485,866	Operating Expenses
$ 125,455	Professional Services
$ 2,562,010	Other Charges
$ 162,561	Interagency Transfers
$ 3,309,711	Acquisitions
$ 889,920	Major Repairs
$ 43,741,738	Total Expenditures

1996-97 Means Of Financing By Source

$ 22,315,232	Conservation Fund
$ 3,933,581	Other Statutory Dedications
$ 100,062	Interagency Transfers
$ 310,770	Self-generated Revenues
$ 8,664,437	Federal
$ 8,417,656	State General Fund
$ 43,741,738	Total Means of Financing

Revenues to the Conservation Fund, the Department's major operating fund, were generated from the following sources:

$ 5,117,165	Royalties Oil/Gas
$ 1,481,834	Rentals on Land
$ 269,146	Other income on Land
$ 246,649	Interest Income
$ 102,644	Severance Taxes
$ 22,369,384	Licenses, Permits, Fees
$ 1,321,944	Miscellaneous Income
$ 30,908,766	Total Annual Revenue - Conservation Fund

LICENSING SECTION

The Licensing Section accomplished the following: implemented the Homemade Boat Inspection Program; implemented increased recreational license fees passed by the 1997 Legislature; implemented the newly created 3-day Nonresident Saltwater fishing license; implemented the purchase of Nonresident Hunting and Fishing License by telephone with a credit card; implemented the Physically Challenged Hunter Program; implemented several new commercial license requirements and fees passed by the 1997 Legislature; implemented the Commercial Wire Net Gear License; implemented the Commercial Retail Seafood Dealer License; attended the Southeastern Association of Fish and Wildlife agencies Conference, the National Association of Boating Law Administrators Registration and Titling Committee Meeting/International Association of Marine Investigators, and Conservation Business Managers Association Conference.

PERSONNEL SECTION

The Personnel Section provides assistance to active employees, retirees, former employees, and their dependents. The staff furnishes guidance and advice about such personnel matters as rate of pay, position allocation concerns, insurance benefits, retirement benefits, worker's compensation issues, employment opportunities, and Civil Service rules. The staff also provides guidance, advice, and interpretation to employees on agency policies and procedures.

The Personnel Section is responsible for development and implementation of human resource programs such as Safety, Employee Relations, Training, Classification and Pay, Selection/Placement, Position Control, Organizational Analysis, Affirmative Action/EEO Compliance, Recruitment, and Benefits programs.

The Personnel Section maintains a very aggressive recruiting program that has resulted in a broader applicant pool for the selection and placement of our unique scientific, technical and law enforcement positions which make up the majority of the departments workforce. Also, the Personnel Section continues providing guidance to agency staff in the selection and placement procedure. Participating in interviews and providing guidance to agency staff in following legal interviewing guidelines has allowed us to achieve compliance with state, and federal laws, and department policies. This has resulted in a very effective method of conducting interviews and selecting the most qualified applicant.

In the organizational analysis and position control area, the Personnel Section maintains a quarterly reporting system. Managers and supervisors are provided with an employee action history, a listing of vacant, funded positions, and position listing reports on a quarterly basis to assist them with personnel matters in their respective divisions. Further development of these programs continues in an effort to enhance and broaden personnel services to the management staff.

As a result of Personnel efforts with training, accomplishments have been made in providing staff with special training needs as well as continuing to coordinate classes through the Comprehensive Public Training Program(CPTP). The Personnel Section was responsible for the training of about 100 employees in new employee orientation, 50 employees in *Telephone Courtesy*, 185 employees in *Coaching the Experience Driver*, 40 employees in *Sexual Harassment awareness Training* and 58 employees in *Sexual Harassment Technical Assistance*. Through coordination with the CPTP program, computer center and the Personnel Section, employees will be offered nine different types of computer training through computer based software. The personnel staff has presented about 25 new employee orientations, several *Coaching the Experience Driver* courses, three *Sexual Harassment Awareness/ Technical Assistance* classes, and has coordinated four *Telephone Courtesy* courses.

A member of the Human Resource staff serves as the designated safety analyst for the department and is responsible for the maintenance of a comprehensive loss prevention and safety program. The Human Resource staff develops policies, procedures and work requirements relative to training in a safety program. The safety analyst serves as the chairman of the Accident review Committee. This position is responsible for a needs analysis on training/information dissemination and the distribution and maintenance of a safety manual. Through the safety program Personnel, is responsible for the development, promotion and maintenance of guidelines for a violence-free workplace. This includes implementing and maintaining effective security measures to minimize exposure to conditions that could result in harm to employees. The Safety Analyst serves as the liaison between department employees, Office of Risk Management and others involved in safety issues.

Finally, in fiscal year 96-97 the Human Resource staff had more than 1,315 personnel actions compiled, analyzed and processed to ensure the maintenance of employee records.

SOCIOECONOMIC RESEARCH AND DEVELOPMENT

The Socioeconomic Research and Development Section conducts, coordinates and recommends multiple economic research studies pertaining to valuation of wetlands and wildlife and fishery resources of the State of Louisiana, and the Gulf Region, as well as analyzes alternative management practices, alternative sources of revenue and the effectiveness of alternative programs. Moreover, this Section conducts independent studies concerning the economic impact of rules, regulations and policies, regarding the resources for the State of Louisiana and the Gulf Region, as well as develops proposals to conduct studies pertaining to State and Federal Projects, and assist in the development and preparation of the annual budget for designated subprograms.

The Section presents the results of its findings to agency staff and at appropriate professional and scientific meetings, prepares management plans for the economic section of wildlife and fisheries, confers and meets with federal, state and local officials frequently to review mutual problems, procedures and actions involving wildlife and fisheries resources, and participates in study groups, task forces and committees established to effectively study, manage and enhance wildlife and fisheries resources. It administers the Clean Vessel Grant Act Program and the Wildlife and Fisheries Credit Card Program.

ADMINISTRATIVE SERVICES

The Administrative Services Section consists of Purchasing and General Services.

The administrative staff worked closely with and supported other divisions in their endeavors. More specifically they assisted with Merchandising, Louisiana National Hunting and Fishing Day, vehicle maintenance contracts, seafood promotions, alligator harvest, timber sales, farm leases, and managed deer hunts.

Purchasing

Purchasing insures compliance with all state and department laws and regulations concerning procurement. Purchasing is in a state wide computerized transition period called ISIS. The purchasing part of ISIS is called AGPS.

The following are tallies of the purchase orders issued by Purchasing staff for fiscal year 1996/97: through Louisiana State Purchasing - 147; department purchase orders - 56; department release orders approximately- 2000; department small purchases approximately - 10,000. In addition, 24 leases were maintained, initiated or updated.

General Services

The mail system, printing, receiving, messenger, reproduction and supply room are sub-units of General Services. Over 300,000 pieces of mail were processed. Over 2 million copies were produced on the duplicating machine. The supply room utilized an automated computer application to distribute necessary office supplies to headquarters, district offices and remote facilities. The annual savings of the supply room exceeds $100,000.

PROPERTY CONTROL

The Property Control Section consists of property control, fleet management and risk management insurance claims sections and Headquarters Motor Pool.

The Property Control Section insures that all equipment purchased is properly tagged and accounted for in accordance with all State rules and regulations.

A physical inventory is conducted annually at the various offices and field installations throughout the State. The inventory consists of some 19,695 items with a total acquisition cost of over 37,188,622 million dollars.

Vehicle Maintenance

The Property Control staff is responsible for managing the 550 Department owned vehicles. The section insures compliance with all State Fleet rules and regulations. The section receives and distributes over one-hundred new vehicles each fiscal year.

Risk Management Insurance Claims

The Property Control staff provided assistance and information to Department employees who filed some $327,325 worth of collision, liability, property and comprehensive claims during the past fiscal year. These claims were handled and processed through the Office of Risk Management.

COMPUTER CENTER

The Computer Section oversees the department's information processing resources. Central computers serve local and remote networks, processing data for enterprise wide applications as well as work-group oriented activities. Department employees are connected to these systems via a combination of terminals and personal computers, giving them access to the wide variety of information processing capabilities.

The section staff provides support to Department personnel by developing custom application systems, maintaining and enhancing databases, providing training for Department employees and by responding to questions on hardware and software.

Accomplishments over the past year have included many enhancements to existing application systems as well as the implementation of new capabilities. The Department servers were upgraded to provide improved access to services and information. Wide Area Networking was implemented to all field offices, providing them the same services available at the main office.

OFFICE OF WILDLIFE

The Office of Wildlife consists of two divisions, the Wildlife Division and the Fur and Refuge Division.

WILDLIFE DIVISION

The Wildlife Division is responsible for the state's wildlife conservation program and gathering biological data to properly manage wildlife resources.

Statewide Division responsibilities are administered through seven districts. District biologists and wildlife specialists regularly serve the public by:

- developing and managing wildlife habitat and infrastructure on the 850,000 acres of land in the Wildlife Management Area system.
- providing technical assistance to private landowners interested in enhancing and managing their property for wildlife.
- monitoring wildlife populations and gathering information for the development of hunting season recommendations and improvement of wildlife habitat.
- providing and managing public hunts for deer (regular gun, muzzleloader, and archery), dove, quail, rabbit, raccoon, squirrel, turkey, woodcock, and waterfowl on Wildlife Management Areas.
- contributing to management of alligators and furbearers on WMAs and public lakes.
- assisting the public with nuisance animal problems caused by animals such as coyotes, beavers, alligators, squirrels and deer.
- presenting programs to conservation and civic organizations and providing information and assistance to television and newspaper journalists.

The state is divided into seven administrative districts as follows:

Region 1 (northwest Louisiana: Bienville, Bossier, Caddo, Claiborne, DeSoto, Red River, and Webster parishes). Habitat consists predominantly of rolling, mixed pine-hardwood forest habitat bisected by the Red River and agricultural lands bordering it. Approximately 71,000 acres are included in the Bodcau, Jackson-Bienville, Loggy Bayou and Bayou Pierre Wildlife Management Areas.

Region 2 (northeastern Louisiana: East Carroll, Jackson, Lincoln, Morehouse, Ouachita, Richland, Union, and West Carroll parishes). Habitat types consist of rolling mixed-pine hardwood forest, Mississippi River bottomland forests and agricultural areas. The Bayou Macon, Georgia-Pacific, Ouachita, Russell Sage, and Union WMAs are located in the district. In addition, the Floy McElroy Wildlife Management Area, a 700-acre tract donated to the state, is managed on a low maintenance basis until fully released to the Department by the donor. Five small properties obtained from the Farmers Home Administration are managed as the Big Colewa Bayou WMA.

Region 3 (west central Louisiana: Grant, LaSalle, Natchitoches, Rapides, Sabine, and Winn parishes). Habitat consists primarily of piney woods. Department-owned lands include Dewey W. Wills and Little River wildlife management areas, totaling 63,220 acres. Three leased WMAs (Alexander State Forest, Camp Beauregard, and Sabine) provide an additional 35,372 acres for outdoor recreation. Leased WMAs are provided without fee to the Department. In addition to the WMAs the U. S. Forest Service owns over 500,000 acres within District 3.

Region 4 (east central Louisiana: Caldwell, Catahoula, Concordia, Franklin, Madison, and Tensas parishes). Habitat consists of diverse habitats, ranging from mixed pine-hardwood uplands to bottomland hardwood forests associated with the alluvial flood plains of the Boeuf, Black, Red, Ouachita, Tensas and Mississippi River systems. Six WMAs (Red River, Three Rivers, Boeuf, Sicily Island Hills, Big Lake, and Buckhorn) are located in District 4 for a total of approximately 146,733 acres.

Region 5 (southwestern Louisiana: Acadia, Allen, Beauregard, Calcasieu, Cameron, Evangeline, Jefferson Davis, Vermilion, and Vernon parishes). Habitat ranges from extensive coastal marshes, to prairies and vast agricultural areas, to hardwood bottoms, to rolling hills of pine plantations or mixed pine-hardwoods. Seven WMAs (Boise-Vernon, Fort Polk, Marsh Bayou, Peason Ridge, Sabine Island, Wal-Nut Hill and West Bay) totaling 268,980 acres are managed within the district.

Region 6 (south central Louisiana: Avoyelles, western Assumption, Iberville, Iberia, Lafayette, western Lafourche, Pointe Coupee, St. Landry, St. Martin, St. Mary, Terrebonne, West Baton Rouge parishes). Habitat type ranges from mixed pine-hardwoods to backwater bottomland hardwoods interspersed with agricultural lands, and cypress-tupelo swamps to open-water areas. There are six WMAs, comprising 97,309 acres (Sherburne, Thistlethwaite, Grassy Lake, Spring Bayou, Attakapas, and Pomme de Terre), one federal refuge, and U.S. Army Corps of Engineers land within the district.

Region 7 (southeast Louisiana: Ascension, East Baton Rouge, East Feliciana, Livingston, Orleans, Jefferson, St. Helena, Tangipahoa, Washington, St. Tammany, St. Bernard, St. James, St. John, Plaquemines, St. Charles, eastern Lafourche, eastern Assumption parishes). Habitat type ranges from marshes and swamps to rugged bluff uplands. Ten wildlife management areas (Pearl River, Joyce, Manchac, Sandy Hollow, Bens Creek, Hutchinson Creek, Biloxi, Lake Ramsay and Wisner) consisting of 141,202 acres are located in this district.

The Wildlife Division divides its responsibilities into two major categories: (1) Habitat Stewardship and (2) Research and Management.

HABITAT STEWARDSHIP

Habitat Stewardship is organized in three basic categories: Land Acquisition, Land Development, and Forest Management.

Land Acquisition

Land acquisition for wildlife management purposes is the best way to ensure that there is available habitat for the state's diverse wildlife resources. During fiscal year 1996-97 four acquisitions and two donations were completed:

- A 40.81 acre tract which was surrounded by state land (*inholding*) was added to Sandy Hollow WMA in Tangipahoa.
- A 181.67 acre *adjacent* tract was also added to Sandy Hollow WMA.
- Likewise, a 160 acre *adjacent* tract was added to Red River WMA in Concordia Parish.
- And a 7.5 acre *adjacent* tract, with road frontage was also added to Red River WMA.

Land Development

Land development involves both wildlife habitat enhancement and infrastructure improvement to accommodate public use of the 38 WMAs. Typical activities include road and bridge repair and construction, vegetation control, tree planting, water control structure operation, pump station operation, wildlife food plot development, and boundary maintenance. Coordination and monitoring of mineral exploration activities is also a function of the Wildlife Division on WMAs.

Forest Management

The mission of the Forest Management Program is to improve forest and wildlife habitat on WMAs through sound timber management and reforestation practices. This program also serves to demonstrate the integration of forest management and wildlife habitat management to private landowners.

Public Lands: General forest inventories were completed in scheduled compartments of several WMAs. Additionally, numerous tracts of private land were inventoried for possible acquisition.

Harvest preparations, including sale layout, inventory, regeneration counts, marking, map work, and proposal preparations were completed on Dewey Wills, Red River, Sherburne, Buckhorn, and Russell Sage WMAs. One "no sale" was reported on Red River due to the depressed timber market in that region. Timber harvest to improve wildlife habitat was initiated on Three Rivers, Boeuf, Buckhorn, Ouachita and Russell Sage WMAs. No southern pine beetle infestations were noted/reported on the WMAs. Reforestation work was continued on other department properties with concentration on Attakapas Island, Bayou Pierre, Boeuf, Bayou Macon, Walnut Hill, Ouachita, Buckhorn and Marsh Bayou WMAs. Activities included site development and preparation, seedling or seed planting, survival plot establishment, and survival checks. More than 3,300 acres were reforested during the 1996-97 season.

Acorn and various tree seed collections were conducted to ensure a seed and seedling source for future reforestation efforts. The annual WMA mast survey aids this effort by concentrating collection efforts where the most needed types of trees species are available. The mast survey also provides an indication of the future abundance of forest wildlife species such as squirrels.

Private Lands: LDWF Forestry Section and district biological staff provided technical assistance through the Louisiana Forest Stewardship Program, a program offered by the Louisiana Department of Agriculture and Forestry to provide technical assistance to private non-industrial landowners. The program supports a multiple use approach to forest management. LDWF provides the wildlife management expertise. Numerous landowners were assisted in fiscal year 1996-97.

Professional Forestry Education: Wildlife Division district staff and forestry section staff attended education courses to develop and enhance their forest management skills. Coordination continued with LSU and La. Office of Forestry to develop training programs for management of bottomland hardwoods. Additionally, cooperative work on various research projects associated with reforestation and forest management continued with several state universities.

RESEARCH AND MANAGEMENT

A wide range of research and management work is conducted in order to maintain healthy productive populations of game and to provide recreational opportunities for citizens to enjoy these species. Staff biologists gather data on game birds and animals, largely for use in formulating hunting regulations. The game species programs are Upland Game, White-tailed Deer, Waterfowl, and Wild Turkey.

Upland Game

Dove

Populations have been monitored nationwide since 1953 by a call-count survey. The survey makes an estimate of the number of birds by recording the number of doves heard calling during the nesting season along certain roadsides. At each stop a biologist records the number of doves heard calling for a prescribed time. Louisiana's dove population is monitored along 19 routes randomly located throughout the state. The breeding dove population was collectively low for fiscal year 1995-96. In May 1997, an average of approximately 11 doves per route was recorded. This represents about a 24 percent increase in doves per route from 1996. The U. S. Fish and Wildlife Service uses the call-count survey to determine hunting season lengths and bag limits for each state. States may then select a season with this framework. Dove hunting regulations for Louisiana in 1996 were set at 60 days with a bag limit of 15 birds. Shooting hours remained unchanged from the year before allowing, all-day hunting, except on opening weekends of each segment when hunting was restricted to afternoons only. A survey of resident license holders indicates that approximately 59,000 Louisiana hunters harvested 1.1 million doves during the 1996-97 season.

Quail

Two statewide population surveys were conducted this past year: the wing and hunter survey and the fall whistling survey. Hunters participating in the annual wing survey supplied 419 wings. From these wings, sex and age ratios were determined as well as peak hatching periods. Production per adult hen during 1996 was about 22 percent more than in 1995. Milder summer conditions during 1996 contributed to the higher production index. In addition, hunters provided data on coveys found per hunt, bag, and crippling losses. Similar information was also obtained from Sandy Hollow WMA where daily check-in is required.

Statewide fall whistling counts were conducted on 48 randomly located routes and an additional six routes on Department WMAs or National Forest lands. On a statewide basis, counts were significantly up from last year. This was largely due to large increases in the longleaf, Florida Parish loblolly and rice production areas. The rice routes recorded a 50 percent increase while the longleaf pine and the Florida Parish loblolly areas each observed over 36 percent increases. The longleaf country is normally one of the more productive areas for quail hunting. These increases were reflected in the production index.

Inferences about population status and habitat conditions were developed based on the combined results of these two survey techniques and general observations by Department personnel during the breeding season. Data are summarized in the Federal Aid W-55-11 Annual Report.

In District 7, approximately 150 acres of brush were cleared on the Sandy Hollow WMA in preparation for an upland bird field trial course. Approximately 125 food plots were planted and maintained on District 7 WMAs.

The Cooperative Quail Project, a joint project between the Department of Wildlife and Fisheries, the U. S. Forest Service, the U. S. Fish and Wildlife Service, and the Central Louisiana Chapter of Quail Unlimited, continued in 1996-97. Population monitoring programs continued.

A survey of resident license holders indicates that approximately 6,300 Louisiana hunters harvested 71,500 quail during the 1996-97 season. These represented 69 percent and 221 percent increases from the 1995-96 values.

Woodcock

A woodcock banding program was initiated in 1990 to determine sex and age ratios, site fidelity, movement patterns and harvest rates of woodcock wintering in Louisiana. From December 1996 to January 1997, 94 woodcock were captured and 86 banded on Sherburne WMA. Five were reported recovered by hunters. Hunters on Sherburne also provided data on hunt characteristics through use of mandatory self-clearing stations. Data are summarized in the Federal Aid W-55-11 report.

In January 1997 the Department hosted the 9th **Woodcock Symposium** in Baton Rouge. This event had about 100 biologists, researchers, and managers from across the United States, Canada and Europe in attendance. About 25 papers were presented on various aspects of American woodcock and European woodcock. Department personnel authored 4 papers for the symposium and provided significant logistical support for another study presented.

The Department hosted the U. S. Fish and Wildlife Service Annual Woodcock Wing Bee in January 1997. Data derived from aging and sexing about 10,000 woodcock wings are being used to develop trend data on woodcock production and hunter success. These data, in combination with breeding bird surveys, are used to develop management strategies for woodcock. Although woodcock are considered an under-utilized species in Louisiana by many people, Louisiana hunters' harvest of woodcock actually ranks among the nation's highest. A survey of resident license holders indicates that approximately 9,000 Louisiana hunters harvested 66,500 woodcock during the 1996-97 season. These represent increase of about 5 percent and 11 percent, respectively.

Rabbit

A study was initiated in 1993 to determine the prescribed burning rotation for maintaining old field habitat in bottomland alluvial sites. Vegetation within plots was sampled during September. Unusually mild and wet conditions during the November and December 1996 prevented plots from being burned. As a consequence, rabbit abundance was not determined this year for the study plots. A survey of resident license holders indicates that approximately 70,000 Louisiana hunters harvested 725,000 rabbits during the 1996-97 season. Although the number of hunters remained about the same as last year, their harvest was down about 11 percent.

Pheasant

Spring cock pheasant crowing counts were conducted in March and April 1997 to provide an index to the size of the population. The average count of 32 calls/survey was about 45 percent less than 1996 and the peak count (one of the lowest on record) was almost 60 percent lower than 1996. The low counts were believed to be largely due to the wet, windy conditions throughout the survey period and probably do not represent the decline suggested. Participation in hunting during the 1996 season was very light. Data are summarized in the Federal Aid W-55-11 Annual Report.

Turkey

A new turkey study was initiated within the Upland Section on the Sherburne Wildlife Management Area. Its purpose is to determine seasonal habitat selection by wild turkey hens, estimate their survival rates, estimate poult production and survival, determine breeding and chronology, determine gobbler harvest rates, and monitor changes over time. Hens were radio-tagged during January - March and located 3 times weekly through the breeding and brood-rearing period (March - August) and once weekly the remainder of the year. Gobblers were banded. Data are summarized in the Federal Aid W-55-11 Annual Report.

White-tailed Deer

During the 1996-97 deer season 234,700 white-tailed deer were harvested by 180,200 deer hunters in the state. On WMAs during managed deer hunts, there were 2,460 deer harvested. The total hunter effort for the managed hunts was 38,117. The Deer Management Assistance Program (DMAP) cooperators harvested 25,884 deer. There were 1,228 hunting clubs enrolled in this program. Deer harvest information was entered into a computer program for analysis and evaluation and used to establish deer seasons for 1997-98. The Louisiana Big Game Recognition book was updated. The book, *Managing White-tails in Louisiana,* was distributed to all DMAP Cooperators. This book covers all aspects of deer management in Louisiana.

Disease and parasite investigations continued. Blood serum samples were collected from several deer collections. Breeding date data were collected during the hunting season, and this information was used in establishing the 1997-98 hunting season schedule.

Waterfowl

Inventory

Louisiana has approximately 3.5 million acres of coastal marsh that winter large and diverse waterfowl populations. Aerial waterfowl inventories of the entire coastal marsh, as well as associated agricultural lands in north central and northwest Louisiana, are conducted each winter. It is estimated that 5 million waterfowl migrate down the Central and Mississippi flyways to winter in Louisiana.

The mid-winter inventory indicated 4 million ducks and 950,000 geese wintered in the coastal marsh and inland areas of the Mississippi Delta during January 1997.

In the 1996-97 season, 96,000 hunters bagged 2.1 million ducks. This represents a 5 percent increase in the number of hunters, and a decrease of 3 percent in the duck harvest compared to the previous year. These past 2 hunting seasons have been the most successful in more than a decade. Species composition were blue-winged teal (23 percent), green-winged teal (12 percent), gadwall (21 percent), mallard (11 percent), wood duck (7 percent), with pintail, shoveler, wigeon and ring-necked duck comprising most of the remainder.

Goose harvest increased by 56 percent in 1996-97 to 183,350. White-fronted geese comprised 53 percent of the harvest with blue and snow geese accounting for the remainder.

North American Waterfowl Management Plan

Louisiana is continuing to play an important role in the North American Waterfowl Management Plan (NAWMP), however the position responsible for coordinating activities continues to be vacant. As a result, the Department has strived to maintain ongoing projects and other activities associated with the NAWMP at a minimum.

The Louisiana Waterfowl Project, a private wetlands development program, has completed its fifth year. This is a cooperative program involving LDWF, Ducks Unlimited, U.S. Department of Agriculture/ Natural Resource Conservation Service, various pipeline companies, and selected private land owners. This project has been approved for NAWCA funding.

Wood Duck

During 1996, the Department banded 786 wood ducks, a decrease of 53 % from the number banded in 1995. Approximately 296 of these birds were captured with cannon nets and the remainder were nesting hens banded in wood duck nest boxes.

The wood duck box program completed its seventh year in 1995. An additional 100 boxes were installed on Department WMAs. There are approximately 2,500 boxes in use now; 1,000 of these are within District 6. Box utilization by nesting wood ducks was high this year and ranged from 52 to 97 percent with an average of 68 percent. It is anticipated that an additional 100 boxes will be added in 1996-97.

Wild Turkey

Department biologists report a good hatch in 1997 over most of the state's upland areas and anticipate an increase in population. During 1997, 50 wild turkeys were trapped for restocking efforts. Releases were made in Sabine, Morehouse, and Pt. Coupee parishes. Restocking efforts will continue until all suitable wild turkey habitat throughout the state contains a viable turkey population.

The most recent turkey survey indicated a decrease in wild turkey harvest of approximately 15% from 1995. Wild turkey hunters numbered 20,800, (up 2%) and harvested 8,000 wild turkeys during the spring of 1996. The wild turkey population in Louisiana is estimated at 90,000 to 100,000 birds.

The voluntary turkey check stations continued to produce valuable information on wild turkeys throughout Louisiana. About 14 percent of the wild turkey harvest is reported at the 200 check stations, and this information allows the Department to determine population trends, age classes of harvested wild turkeys, weights and other factors which assist in making management decisions. During the 1997 spring gobbler season, 1,395 wild turkeys were recorded at these check stations.

The Department continues to monitor for disease and parasites in order to anticipate local problems with the wild turkey flocks.

A cooperative research project involving the U. S. Forest Service and the Department was initiated to assess the impacts of growing season prescribed burning on wild turkey nesting and productivity. Use of spring and summer prescribed fire has increased on the Kisatchie National Forest in recent years. Concern by some about the effects of growing season burns on wild turkey populations caused the Department and the Forest Service to launch a three year project on the Catahoula Ranger District in Grant and Winn parishes to evaluate the impact of this practice. In 1996, seven wild turkey hens were fitted with radio transmitters. The hens were monitored throughout the year and their habitat use and survival determined. This project ended on June 30, 1997.

FUR AND REFUGE DIVISION

The fur and refuge division is responsible for managing four Coastal Refuges and five Coastal Wildlife Management Areas which encompass 12.5% of Coastal Louisiana. These areas include the two major river deltas on the North American Continent and serve as test sites for marsh management strategies designed to stabilize isohaline lines, conserve and restore coastal wetlands, and provide productive wildlife habitat. In addition, management expertise and guidance is provided to private owners. Professional expertise is provided for the implementation of international, federal, and state legislation and regulations governing wise use of alligators, furbearers, coastal marshlands, and other important wildlife and fisheries resources.

Responsibilities of the division are divided into three major categories: Land Management; Species Research and Management; and Publication/Cooperative Research/Technical Assistance/Science Information.

LAND MANAGEMENT

Land Management on the Division's five coastal refuges and five wildlife management areas is primarily directed toward improving wetlands for resident and migratory waterfowl as well as many aquatic-based animals (furbearers, reptiles, amphibians, freshwater fish, estuarine organisms, and game and non-game birds).

An important facet of land management of coastal marshes is monitoring mineral activities. Each activity is individually reviewed and must comply with the Department's mineral regulations, deeds of donation, and various agreement letters.

Environmental monitoring is also conducted in association with marsh management projects to provide guidance to various landowners in management decisions. Information on precipitation, water levels, and salinities is used for management on Division properties and adjacent private properties. Daily rainfall records are submitted to the National Weather Service. Water level and salinity stations are monitored bi- monthly, weekly or continually by electronic data recorders.

Rockefeller Wildlife Refuge

Rockefeller Wildlife Refuge continues to be a leading test site for coastal marsh restoration and enhancement techniques, and a prime example of how intensive management can protect and enhance coastal wetlands for fish and wildlife. Rockefeller continues to stay on the cutting edge of coastal marsh issues, from the earliest marsh management activities to the latest recommendations regarding 3-D seismic activity.

Marsh Management and Restoration

Rockefeller's staff maintains over 200 miles of levees and 40 water control structures which result in conservation of approximately 80,000 acres of Refuge wetlands. These also benefit water management capability of 100,000 acres within the Mermentau River Basin. Work includes intensive management of water level/salinity control for 15 large units geared towards vegetation, fish and wildlife production. Objectives of maintenance and manipulation of the refuge's system of levees and water control structures vary somewhat by management unit, but generally goals are to maintain marsh health and provide conditions favorable for production of waterfowl food plants.

Seven marsh projects were initiated during fiscal year 1996-97 which enhanced 37,200 wetland acres.

- The southeast Unit 1 levee was refurbished to maintain water management capabilities and prevent salt water intrusion.
- The entrances of the following waterways to the Gulf of Mexico were dredged by amphibious dragline to reduce marsh waterlogging and improve drainage from Rockefeller Refuge and surrounding private property: Little Constance Bayou, Pigeon Bayou, Beach Prong, and Rollover Bayou.
- Price Lake Road was repaired due to erosion from high tides.
- The hydrologic plug located in the southeast corner of Unit 4 was refurbished.
- Unit 5 perimeter levees were refurbished.
- The west Unit 15 levee was refurbished.
- The southwest Unit 10 levee was refurbished.

As a general rule 15 to 35 percent of the Refuge is control-burned annually. This year 1,850 acres were burned in Unit 5 due to a wildfire. No other burning occurred due to a 3-year research project being conducted to assess vegetation changes, bird use, herbivory, and goose behavior and foraging ecology on the refuge. Normal burning practices will resume during Fall/Winter 1998.

The Division has been involved for several years with Mobil Inc. in their abandonment of non-productive acreage. Special dams were built to slow down normal water flow and allow natural fill-up of the canal through vegetation and soil settlement. Incorporated into each dam system was a recessed ramped area used by alligators and other animals in lieu of climbing the steeper levees, thus resulting in less stress on levees. Three of these plugs were installed in 1994 to augment five in place since 1985. Sampling continued relative to a study initiated in the Spring of 1995 to assess wetland impacts of these plugs, including water parameters, vegetative mapping, and erosion/accretion. Three of the plugs were refurbished by Mobil during 1996-97.

Mobil Inc. completed a 3-D seismograph project on the central portion of the Refuge in the Spring of 1995. In 1994, Division personnel initiated a study to assess the vegetative impacts of this activity in coastal marsh. Sampling continues on this 3 year project. Results from this study will aid in planning future 3-D activities on coastal refuges and wildlife management areas, as well as private property.

As part of a Division-wide effort to precisely document effects of water management in coastal marshes, the Rockefeller staff maintain six continuous water level and salinity recorders at strategic locations within the Refuge.

Marsh enhancement units managed by structural means have proven popular with sports fishermen, resulting in overcrowding in many places. Damage to levees and alterations of automatic features of the structures that regulate water salinities and levels has been a problem. Additionally, heavy public usage has placed a strain on boat launch and parking facilities. According to data collected, it was estimated that Rockefeller Refuge experienced approximately 103,621 man days of public use during fiscal year 1996-97. Of this approximately 99,131 man days were used for consumptive use while about 4,490 were non-consumptive activities. Data collected during last fiscal year, indicated consumptive use at Rockefeller increased 24%, while non-consumptive use fell by 14%. The increase in consumptive use is probably a result of above average shrimp production on the refuge in the fall of 1996.

Enforcement

In compliance with the Deed of Donation by which Louisiana accepted this Refuge in coastal southwest Louisiana, three post-certified Conservation Officers patrolled Rockefeller and enforced state and federal laws and LDWF rules and regulations. Enforcement activities on Rockefeller Refuge are under the direct supervision of the Enforcement Division.

Actions consisted mostly of insuring compliance with rules and regulations of the Refuge, trespassing before and after hours, fishing and boating violations. Conservation Officers also responded to U. S. Coast Guard search and rescue requests.

Marsh Island Refuge

Marsh Island Wildlife Refuge is located in the center of Louisiana's Gulf coastal marshes. Marsh Island is primarily comprised of brackish marsh, supporting a wealth of resident wildlife species and provides wintering habitat for thousands of migratory waterfowl, geese and shorebirds.

Marsh Management and Restoration

During this fiscal year, water was held at marsh elevation in both the east and west impoundments to stop emergent vegetation from encroaching into marsh ponds and to create suitable conditions for aquatic plant growth and mottled duck nesting. Due to increased and stable water levels in these two units some vertical accretion was measured. Habitat was enhanced on 8,000 acres in these impoundments.

Due to improved water management in the Northeast and Southeast units, more annual grasses were produced in 1996-97 than in any previous year. In the Northeast Unit the percent marsh with emergent vegetation increased from 68% to 78% and in the Southeast Unit the percentage increased from 74% to 83%. These units provided a wealth of waterfowl foods for wintering waterfowl. Interior ponds in the impoundments provided food and cover for resident mottled ducks in June of 1996 and 1997. This increase in vegetation was due to a successful drawdown in both of these experimental hydrologic units. Vegetative composition and relative abundance is monitored with over 200 sampling stations placed along randomly located vegetative transects. Species composition for both emergent and aquatic plants increased in diversity and was indicative of fresher conditions.

A levee was constructed along Bird Island Bayou to the Big Dam to prevent high tidal inundation around the weir. Other levee work in this same area was initiated to solidify the Big Dam hydrologic unit, which controls 15,000 acres of Marsh Island.

Major repairs to a significant portion of the bulkhead surrounding the headquarters were completed and a hurricane ramp was constructed along side the generator building. A bulkhead around the trappers camp on Bird Island Bayou was built and repairs to a structure on Joe Aucoin Bayou were completed. The structure located on Joe Aucoin Bayou directly affects the Northeast Experimental Hydrologic unit, thus, the repair of this structure will solidify the function of this unit. The weir at the Gordy Dam was replaced and improved to provide better access to the public for recreational purposes. These projects began in September 1996 and were completed during Fiscal Year 1996-97. Future plans include wave dampening devices to protect the headquarters island.

The 5-acre shorebird nesting island in Lake Platte was maintained by controlling the emergent vegetation. Approximately two-thirds of this island is suitable for shorebird nesting. Approximately 30,000 cubic yards of shell were placed on the island. Nesting activity by approximately 475 terns, gulls, and skimmers was noted in spring 1997.

Approximately 30 percent (22,000 acres) of Marsh Island was enhanced through control burning during 1996-97. This burning resulted in the production of three cornered grass. This practice provided habitat for large goose populations.

Environmental monitoring on Marsh Island includes determining bimonthly water salinities (25 sites), water levels (12 gauges), and daily temperature and rainfall amounts. A constant tide recorder registers water levels within a weired management unit on Marsh Island providing data on effects of a fixed crest weir on marsh water levels. Nine constant water level and salinity recorders are deployed throughout the Island to provide base line data necessary to make management decisions. This data also provides insight to distribution and abundance of waterfowl, furbearers and alligators. Water level and salinity from 1986 through 1997 have been entered for computer analysis. Salinity data analysis has allowed for the reduction in number of sampling points by 40 percent and aided in evaluation of marsh management techniques.

The marsh in selected areas was surveyed for impacts of the burning program and vegetative succession following the impact from muskrat and nutria damage.

The University of Southwestern Louisiana (USL) Biology Department under the direction of Dr. Andy Nyman is continuing an ongoing study of areas under water control versus non-controlled areas on Marsh Island. The emphasis during this period has been work related to the new experimental management units, examining internal erosion patterns and soil and vegetation changes. This project has been extended to investigate soil strength, bulk density, percent mineral and organics, and below ground biomass in the managed versus the non-managed systems. Along with the erosion study, marsh elevations inside and outside of weired and managed areas are being compared and evaluated.

Susan Mopper with USL is continuing research of Iris populations on Marsh Island. Her focus is to address the effect of salinity on the physiology of the plant. She is also investigating genetic differences between populations on the island.

Another project is underway investigating *Spartina alterniflora* (Oyster grass) and its mechanisms of propagation and dispersal. This investigation is being conducted by USL and the Marsh Island Biologist.

A research project on evaluating the timing of marsh burning in association with its effects on plant species is continuing in the 8,000 acre impoundment. This project was a concerted effort of USL Biology Dept. and the Fur and Refuge Division. Plans are to continue this project and evaluate the long term effects of burning at different times during the year.

Research associated with the experimental management units was continued during this period. Research will require continual monitoring of water level and salinity inside and outside these units as well as annual vegetation transects and periodic aerial photography. Vegetation transects were established in October 1993 and will be repeated annually.

A 3-D seismic project on Marsh Island was completed in June of 1996. The area surveyed was 10,000 acres on the east end referred to as The Lake Sand Field. The areas damaged were repaired through plantings and anti-erosion devices such as biomats and biologs. These repairs were made in September 1996 and are monitored for their success. The area of the seismic project is periodically being evaluated for long term damage effects.

Six GPS vertical elevations relative to NVGD were placed on Marsh Island, in August 1996, to facilitate a better understanding of the topography and its relationship to the hydrology. These elevations aide in other research projects as well.

The Whooping Crane Wintering Sites Study Team began evaluating Marsh Island as a potential site for establishment of an "experimental non-essential population" of migrating whooping cranes. Dr. John Cannon and Dr. Filipe Chavez-Ramirez visited Marsh Island as one of the 21 potential sites in the Fall of 1996. After further evaluation of the sites, Marsh Island was one of two potential sites selected. In the early spring Dr. Chavez-Ramirez returned to Marsh Island with two graduate students to assess invertebrate populations focusing on blue crab populations. Linear transects were run in areas surrounding shallow ponds to assess invertebrate populations and densities. This project will continue through FY 1997-98.

Alligator research continued with a harvest of 759 alligators during July 1997. Over 9,900 alligators have been harvested since 1986. This research program includes night counts, nest counts, assessment of growth rates and hatchling releases. Data analysis will continue in 1997-98.

Recreational activities on Marsh Island Wildlife Refuge include fishing, crabbing, shrimping, boating and bird watching. Nearly 25,810 man days of recreation were spent on the refuge during Fiscal Year 1996-97.

Enforcement

Marsh Island Refuge maintains a 24-hour law enforcement program with two Conservation Officers under the direct supervision of the Enforcement Division.

State Wildlife Refuge

This refuge, located on the western shore of Vermilion Bay, consists of 13,000 acres of brackish marsh. Management is directed toward providing wintering habitat for ducks and geese. Significant numbers of ducks and geese utilized State Wildlife Refuge during 1996-97. Major repairs were conducted as needed on all Refuge facilities and equipment.

Marsh Management and Restoration

Eight fixed-crest weirs are used to control water levels on the Refuge, enhancing and protecting approximately 10,000 acres. All weirs are monitored periodically and appropriate maintenance is conducted. Shell is added to the wing walls to prevent erosion. Currently maintenance was performed on the weir at Hog Bayou. The wing walls were replaced and portions of the weir were patched. This weir controls water levels on the Southern third of State Wildlife Refuge. Recreational usage at this weir is substantial.

To enhance habitat, approximately 75 percent of the Refuge was burned according to carefully controlled plans and supervision during the Winter of 1996-97. Muskrat and nutria populations increased during 1996-97, resulting in some trapping on the Refuge. Trapping was limited due to the difficulty of acquiring trappers.

Public use activities on State Wildlife resulted in an estimated 16,195 man hours for 1996-97.

Enforcement

State Wildlife Refuge maintains a continuous law enforcement program despite its remoteness, with two Conservation Officers under the direct supervision of the Enforcement Division. The Refuge and adjacent wetlands and bay are patrolled on a daily basis. Personnel assisted the Sheriff Dept and Enforcement in rescue operations. Personnel also assisted the Sheriff with the DARE program.

Terrebonne Barrier Island Refuge

The Fur and Refuge Division took on additional responsibility for wetland habitat protection on July 24, 1992, when Louisiana Land and Exploration Co. transferred management responsibility to LDWF for three barrier islands by way of a 25-year free lease. These islands include Wine, Whiskey, and Raccoon, located across the shoreline of Terrebonne Parish and total approximately 3,400 acres. Raccoon Island is one of the most important nesting sites for colonial waterbirds anywhere in the state. It is also home to the state's second largest brown pelican colony.

Specific regulations have been implemented to ensure the protection of nesting waterbirds and their habitat while continuing to allow the public the opportunity to pursue outdoor activities on these barrier islands. Ground and aerial surveillance are conducted periodically to achieve the management goals.

Marsh Management and Restoration

During 1995-96 a Breaux Bill demonstration project was planned and approved for construction of 8 breakwaters for Raccoon Island. These offshore breakwaters were constructed using large limestone rock and were designed and strategically placed along the east end of Raccoon Island. Construction was completed in June 1997. Severe erosion is occurring along the beach, threatening the vegetated portion of Raccoon Island. This vegetation is critical nesting habitat for brown pelicans and wading birds. The breakwaters act to reduce erosion in this area.

The west end of Raccoon Island continues to develop and build. An extensive sandbar now extends a mile westward. As this area continues to increase in elevation it will become an important nesting habitat for shorebirds.

Aerial and ground surveys were conducted on Raccoon Island to document numbers of birds by species, location, and habitat type. Special flights were also made to monitor nesting success of all colonial waterbirds, especially brown pelicans. Data from the 1997 survey indicated the following estimates: 290 black-crowned night herons, 1460 tri-colored herons, 15 reddish egrets, 360 snowy egrets, 380 great egrets, 110 roseate spoonbills, 10,000 laughing gulls, 1,680 sandwich terns, 1,120 royal terns, 150 black skimmers and 20 caspian terns.

The brown pelican nesting colony at Raccoon Island continues to flourish and contribute significantly to the coast wide population. Estimated production in 1996 was 2,560 nests.

Estimates of nesting activity on Wine Island included: 1,500 laughing gulls, 30 brown pelicans, 18,750 sandwich terns, 500 caspian terns, 5,750 royal terns and 600 black skimmers.

A study was initiated to assess vegetative composition and distribution before and after restoration projects. Six permanent transects were established on Raccoon Island and vegetative composition assessed during February 1995, 1996 and 1997. Elevation data was also collected along the transect to correlate to vegetative composition. The vegetative assessment will continue in 1997-98.

Waddill Wildlife Refuge

Waddill Wildlife Refuge, located in East Baton Rouge, consists of 237 acres of hardwood bottomland. The Refuge was donated by the Waddill family in the 1950s to the Department.

Construction of an educational building for hunter education and other education projects the Information and Education Division has to offer was begun in 1997. A clay pigeon range is planned for construction to aid in the Hunter Education and for public use.

Renovations to four existing fish ponds was completed. The first two ponds were drained in February 1996. A bulldozer pushed the sludge from the bottom and deepened the ponds to 6-8 feet deep. The sides had most of the pine tree stumps removed and were re-sloped. A four inch well, 325 feet deep, was drilled to fill the ponds after construction.

Atchafalaya Delta Wildlife Management Area

Atchafalaya Delta Wildlife Management Area consists of approximately 137,000 acres of shallow water bays and marshes. Nearly 25,000 acres of emerging delta have been colonized by vegetative communities. Common plant species include duck potato, freshwater three-square, panic grass, and cattail. Extensive areas just beneath the water's surface are exposed during periods of low tide and will become vegetated in the near future.

Atchafalaya Delta provides habitat for many species of wading birds and shorebirds. Feeding, resting and nesting habitat is available for many species. Nesting was monitored during Spring and Summer of 1997. Nesting activity included 15 yellow-crowned night herons, 185 tri-colored herons, 275 white ibis, 190 cattle egrets, 105 black-crowned night herons, 225 snowy egrets, 510 great egrets, 5 dark ibis, 500 forster's terns and 200 roseate spoonbill. Other nesting species include black-necked stilts, common nighthawks and large numbers of mottled ducks. Duck numbers peaked at an estimated 200,000 on the WMA during the winter migration period.

Environmental monitoring includes two water salinity and water level (YSI) monitoring sites which record data on a daily basis and are downloaded and checked monthly. There is also a constant water level recorder which records water level fluctuation continuously.

Marsh Management and Restoration

As outlined in the Atchafalaya Delta Wildlife Management Area Habitat Management Plan, the Fur and Refuge Division worked closely with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, Department of Natural Resources, the Environmental Protection Agency, and others to utilize dredged spoil material to enhance future delta development and create vegetated wetlands. During 1996-97 limited dredging was conducted on the WMA, primarily in open water and did not result in elevated land. However an island approximately 1 mile south east of Eugene Island lighthouse became subaerial. It is approximately 20 acres in size at +1.0 MSL in elevation.

Mitigation projects continued on Big Island and other areas during 1996-97. These projects included planting 6 acres on Big Island (hardwoods), 6 acres on Andrew Island (cypress), 11.5 acres on Community Island (cypress) and 5 acres on Ibis Island (cypress).

Seismic work began on Atchafalaya Delta WMA on May 7, 1995. This began in July 1995 and continued through May 1996. Solid State Geophysical, a Canadian Company, had the contract, and later merged with Geco Geophysical. This operation encompassed all of the WMA and some adjacent private land. Weekly meetings were held to discuss problems, and solutions, and to provide updates, to WMA personnel. Additional work was completed in September 1996 near Eugene Island lighthouse.

Construction of a new boatshed with bulkhead began in June 1996. The boatshed was completed in March 1997.

The 1996 archery season (October) on ADWMA resulted in 882 hunter efforts and 45 deer harvested. This was the fourth deer season conducted on the WMA. Teal season in 1996 resulted in an estimated 4,550 hunter efforts with hunter success, based on bag checks, at 3.4 teal per hunter at the Main Delta and 2.9 teal per hunter at Wax Lake Delta. The standard waterfowl season resulted in 11,100 hunter efforts. Success was fair to good overall.

ADWMA provides abundant habitat for nesting mottled ducks. The majority of the nesting is in association with the dredge material islands created by river dredging. Night work involving the capture and banding of Mottled ducks continued in 1996-97.

Public use activities on Atchafalaya Delta are different than activities on the Division's refuges. The vast majority of the WMA is an important commercial fishing area. An estimated 82,260 people used the WMA during 1996-97. These were composed of 20,795 consumptive users, 46,000 sport and commercial fishermen and 15,465 non-consumptive users.

Mineral Activity

Drilling began down Main Pass (Wax Delta) in October 1996. By November drilling had ceased after hitting a dry hole. A meeting was held in March 1997 for a proposed pipeline by ANR to run from offshore through the WMA near Big Hog Bayou. Permit reviews for a drilling rig began in

March for Zilka Energy in Amerda Pass and drilling began in June 1997.

Pass-a-Loutre Wildlife Management Area

Pass-a-Loutre Wildlife Management Area is composed of 66,000 acres of marshlands at the mouth of the Mississippi River in Plaquemines Parish.

Marsh Management and Restoration

A total of 21 sediment diversion projects have been constructed to combat extreme marsh loss rates in the Mississippi Delta system. Major emphasis is directed at maintaining existing projects to ensure that sediment delivery to the adjacent open water areas is continued. Marsh enhancement projects that were confirmed during the 1996 fiscal year are as follows.

(1) A mitigation project was completed to offset environmental impacts associated with the Plaquemines Parish Hurricane Protection Levee. The project consisted of modification of existing spoil banks and the restoration of historical hydrology which has resulted in marsh enhancement and creation.

(2) Spoil material resulting from the dredging of South Pass by the Corps of Engineers will be used to create miniature barrier islands for protection and enhancement of the western portion of the WMA. The project is scheduled to be initiated in FY97-98.

(3) The sweeping of three existing sediment diversion projects was completed and maintenance of three additional diversions are being planned through CWPPRA in FY97-98.

Approximately 20 acres of white tailed deer food plots were constructed on the WMA utilizing mitigation from Texaco Exploration and Production Inc. Spring and fall plantings were conducted in FY96-97.

Forty three white tailed deer were harvested during the archery-only season. Two hundred and fifty-eight alligators were harvested during the September alligator season with an average size of approximately 7feet. Waterfowl hunters on the area continued to have good success throughout the season.

Salvador Wildlife Management Area

Salvador Wildlife Management Area, located along the northwestern shore of Lake Salvador in St. Charles Parish, is comprised of approximately 30,000 acres of fresh and intermediate marsh which produces ideal habitat for waterfowl and alligators. A sizeable deer herd is also present. It is anticipated that the Davis Pond Freshwater Diversion Project, when implemented, will maintain marshes and eliminate the potential for saltwater intrusion. The Department has worked closely with the Corps of Engineers to ensure that coordination continued on this important project. Weekly meetings are presently being held to ensure that construction is compatible with WMA activities.

Marsh Management and Restoration

Marsh enhancement projects are primarily aimed at reducing shoreline erosion rates which result from two large open water systems bordering the south and east portions of the management area. A significant breakwater system has been constructed in the Netherlands area to prevent Lake Cataouatche from further eroding into this section of the management area.

The Department is presently cooperating with the National Marine Fisheries Service and the Department of Natural Resources on a shoreline protection demonstration project located along the southern boundary of the management area and on the north shore of Lake Salvador. The project evaluates techniques for erosion control. Construction of this project was completed during FY96-97.

Significant efforts were devoted to reducing the tremendous water hyacinth problem on the area during fiscal year 1996-97. Aerial and ground spraying enhanced approximately 10,000 acres of habitat.

The annual managed either-sex deer hunt resulted in an excellent harvest. Approximately 200 deer are harvested annually on the management area. Waterfowl populations and hunter success were above average during the 1996-97 season. The Department is anticipating an increase in waterfowl populations and hunter success as the hyacinth spraying program enhances habitat conditions.

Approximately 30 percent usage of wood duck boxes on the area was observed and an estimated

24 wood ducks were produced.

Timken Wildlife Management Area

Recently the Department entered into a long term lease with Orleans City Park Improvement Association for an area previously known as Couba Island which contains approximately 3,921 acres. The Department's plan for regulating these newly acquired properties will be similar to the Salvador Wildlife Management Area which is located to the immediate west of this acreage. During FY96-97 the Department's management practices concentrated on enhancing habitat for waterfowl and resident wildlife such as white tailed deer. Additionally, the Department worked with other agencies on projects to reduce the erosion along the southern boundary of the management area. The Department's emphasis has been on reducing the water hyacinth problem in the interior ponds which has reduced submerged aquatic vegetation ultimately reducing habitat for fisheries and waterfowl.

Pointe au Chien Wildlife Management Area

Pointe au Chien Wildlife Management Area is comprised of approximately 30,000 acres of marshlands. Marsh types vary from fresh to salt. The area provides habitat for waterfowl but is gradually changing to a more saline environment conducive to marine organisms.

Marsh Management and Restoration

The area has experienced extreme marsh loss rates in recent years. Efforts directed to offset this trend are primarily aimed at marsh management projects utilizing levees and water control structures. Two projects, Grand Bayou and Montegut, have stabilized salinities and water levels on approximately 8,000 acres. The Montegut unit was kept at pool stage during fiscal year 96-97, resulting in excellent habitat conditions and maintenance of salinities below 5 parts per thousand. The Grand Bayou unit has achieved a reduction in salinity levels which has increased aquatic vegetation in the unit.

Teflon pullover structures were constructed within these units to allow better access. A drainage lateral was constructed in the Montegut unit which allows for better water movement to the structures and additional access.

Reforestation efforts continued on Point Farm properties. Total plantings to date are approximately 550 acres. The Department established a 120 acre dove management area which resulted in the harvest of approximately 300 doves during the opening day of the 1996-97 season. Three artificial reefs located in the Bully Camp area were constructed during FY96-97 and twenty wood duck boxes were erected in FY96-97.

Maintenance and operation of water management units continued. The Department of Natural Resources is responsible for the maintenance of the Montegut Unit, but due to a lack of funds LDWF has been conducting maintenance on this unit. Additionally the Grand Bayou unit was to be maintained by Lafourche Parish, but evidently due to a lack of funds no maintenance has occurred on this unit. Both of these management units produced excellent habitat during FY 96-97.

Mineral Program

The mineral program on coastal Department properties under the jurisdiction of Fur and Refuge Division reviewed and evaluated 108 projects during 1996-97. Projects were individually reviewed and evaluated to ensure that the resulting activity was compatible from both an environmental and public usage viewpoint. Fees generated from these projects which include right of way, surface leases and seismic fees totaled $869,147.00. These funds do not include mineral royalty and mineral lease payments. Due to increased 3-D seismic activity on these properties an increase in mineral projects is expected during FY97-98.

SPECIES RESEARCH AND MANAGEMENT PROGRAMS

A team of 11 biologists administer Alligator, Furbearers, Waterfowl, Watchable Wildlife, Amphibian and Reptile, Estuarine Fisheries, and Pond Culture programs.

Alligator Program

The contributions of Fur and Refuge Division to the well being of Louisiana's wetlands ecosystemwere graphically described in a recent marsh-land use valuation study prepared for the Louisiana Tax Commission (September 3, 1996, Drs. Roberts, Coreil and Ortego, L.S.U. Cooperative Extension Service). This document illustrates the importance of Department managed commercial wetlands programs, most significant in terms of monetary return are alligators which accounted for 45 percent of marshland surface use revenue. Hunting enterprises (26 percent) were followed by fur (10%), cattle grazing (9 percent), aquaculture (5 percent), and recreational fishing (5 percent).

Louisiana's alligator program is housed primarily at Rockefeller Refuge. The program consists of two complex segments, research/management of wild population and a statewide farm/ranch research/management project.

In 1996, severe drought caused a significant reduction in nesting in southwest Louisiana. By the end of July only 16 inches of rain had fallen, the normal is 44.6 inches for the time period. This resulted in a nest count 48% below the 1995 survey. In 1997 rainfall in this area returned to a more normal pattern and the 1997 survey revealed a 60% increase above 1995.

The annual wild alligator harvest (September 1996) produced 28,442 alligators with a base value of $8.7 million. At the end of the 1996-97 fiscal year, there were 81 licensed alligator farms/ranches in Louisiana. Statewide farm/ranch inventory, or number of live alligators, as of December 1996, was approximately 408,527. The 1996 harvest (September 1996-August 1997) on farms/ranches reached 160,000 with a base value of $12 million.

Release of juvenile alligators to the wild to compensate for the collection of eggs is administered on an annual basis by Fur and Refuge Division personnel. The release in 1996 amounted to approximately 40,919 alligators. The release back to the wild on these areas was carefully done, with all released alligators being measured, marked, tagged, and sexed. Preliminary re-trapping and harvest data indicate that farm released alligators grow at least as well as, and usually better than, their wild counterparts. Long term follow-up on the status of these farm-released alligators and comparison to wild tag returns will allow further evaluation of the program.

Inventory methods, harvest regulations, tagging requirements, reporting requirements, and a complex computer program were refined to regulate and monitor harvest of surplus alligators in Louisiana and distribute the kill, in proportion to existing populations, over the area open for harvest. Vegetative maps of wetland types (fresh, intermediate, brackish, saline, marshes and swamp habitat) were utilized to calculate hunter quotas for wild alligator harvest tag allotments. Intensive alligator nest counts were conducted on selected marshlands along the coast and average acres per nest calculated.

Several hundred "re-trapped" alligators were examined, and data evaluation is underway on sex ratios and lengths of harvested alligators. In particular, processing facilities were checked for "retraps" of alligators released from farms or previously tagged in the wild. Several nine-foot size class alligators were harvested in 1997, which had been released from alligator farms. An extensive evaluation of survival of farm releases is ongoing.

At Rockefeller Refuge, studies continued to test the effect of addition of vitamin E, selenium, and fatty acids on the reproductive performance of adult breeder alligators. Numerous blood samples were collected from wild and pen breeders in the Spring of 1995. Complex lipid and hormonal assays are being conducted in biochemistry laboratories in a cooperative research project. One manuscript on the vitamin analysis is "in press".

Ten new "unitized" (1 male with 1 female) breeding pens were constructed and stocked in fiscal year 1992-93 at Rockefeller. Known breeding females were captured at nests; experiments are being conducted to evaluate reproductive performance in the absence of intraspecific social competition, as well as new diets. Results have been disappointing through 1996. Although two pairs did nest, the eggs were not viable. Results improved in 1997 with one nest of all infertiles and two nests producing a total of 43 hatchlings.

A long-term study on natural sex ratios of alligators/nest temperatures was initiated in collaboration with the University of North Dakota. A pilot study in 1995 yielded excellent results with newly developed temperature recorders and will be expanded in 1996-1997. Twenty recorders were placed in alligator nests on Salvador WMA to evaluate nest success and hatchling sex ratios from different vegetative types. In 1997, forty recorders were placed in nests at Rockefeller. Data are being prepared for a manuscript to be submitted for publication.

In 1997, Rockefeller hosted a Ph.D. student from LaTrobe University in Marbourne, Australia. His project entails using advanced cell biology techniques to determine if any genes regulate temperature dependent sex determination in alligators.

March, April, and May average ambient temperatures are correlated with the time of alligator nesting, warmer temperatures bringing about earlier nesting effort. In 1997 nesting peaked in mid-June with most eggs being laid between June 7-June 21. These studies will continue annually and are used to predict peak nesting times, critical information which licensed alligator farmers and landowners use to coordinate egg collection efforts.

The 1997 annual aerial nest count was accomplished on a 2,000 acre study area on Rockefeller. Nesting effort is related to water levels and salinities for the months of March through June. Over the last 10 years, alligators have utilized 10 to 31 acres per nest. In 1997, one nest occurred per 9.13 acres, an excellent nesting effort due to optimum water levels.

Excellent conditions in the Spring/early Summer of 1997 exerted positive impacts on wild alligator nest production in southwestern Louisiana. A 25.9 percent increase in southeast Louisiana resulted in an overall state decrease in nesting of 6.5 percent.

A study was initiated in 1984 to research the endangered Chinese alligator on Rockefeller. The purposes were to develop culture techniques and attempt successful captive propagation for this very rare species. One breeding pair acquired in 1984 is housed in a semi-natural enclosure. Nesting was accomplished in 1997 with a clutch size of 27. The hatchlings are being raised by the LSU Medical Center's Department of Biochemistry (Dr. R. Coulson) following research on temperature dependent sex determination done at Rockefeller.

The experimental harvest of alligators on Salvador WMA continued during 1996-97. From 1986 through September 1990 a total of 4,173 alligators were harvested averaging approximately six feet in length (6.3 feet for hides). From 1991 through 1996, approximately 400 alligators have been harvested annually from this WMA. The emphasis of this harvest has been to collect reproductive information to facilitate population estimation. This data will be analyzed and a new harvest plan developed for subsequent years. Other alligator research presently being conducted on Salvador WMA includes nest counts, night counts, tagging and release of alligators for sex ratio, growth rate and survival rate data. Over 5,800 wild alligators have been captured tagged and released on this area.

Furbearer Program

The Fur and Alligator Advisory Council completed its tenth year of operation in June 1996. The accompanying Fur and Alligator Public Education and Marketing Fund was designed to support programs to ensure a stable future for the state's fur and alligator industry. The council was created to address serious problems facing Louisiana's fur trappers, alligator hunters and farmers, and major coastal landowners. The two major goals of the council are education of the public concerning the role of trapping in wildlife conservation and market stabilization and enhancement for Louisiana's fur and alligator products.

Division staff continued to represent the Department and the International Association of Fish and Wildlife Agencies (IAFWA) at numerous meetings concerning the international effort to standardize trapping systems for furbearers. Additionally one staff member is currently participating on an international negotiating team which is attempting to establish an internationally accepted trap standard which would allow the continued export of furs to the European Union (EU).

Currently two staff members participate on the IAFWA Fur Resource Technical Subcommittee. This committee represents the 50 states and Canada on various issues pertaining to furbearer management. Topics include EU fur regulation, ISO trap standards, National Trapper Education Program, Best Management Practices for furbearers, trap evaluation research and other issues. During Fiscal Year 1996-97 a meeting of the technical subcommittee was hosted at Rockefeller

Refuge and a second meeting was attended in New York State.

The Division continued to provide compilation of fur harvest data for the United States as requested by the IAFWA. Louisiana has served as a clearing house for this information for the past 10 years. This information was published in a fur harvest document by the Ontario Ministry of Natural Resources as well as in a 10-year wildlife status summary completed by the U.S. Forest Service.

A document entitled "U.S. Fur Harvest (1970-1992) and Fur Value (1974-1992) Statistics by State and Region" was compiled for the IAFWA's Fur Resources Committee in June 1994. This document will be updated annually as each state provides appropriate harvest data.

Monitoring Fur Harvest

Various projects are conducted annually to monitor furbearer harvest distribution and total harvest. Each year fur buyers and dealers are required to submit reports providing information on pelts purchased by species and parish of harvest. During 1995-96 this database was updated through the 1994-95 season. Annual audits of all fur dealers provide a record of total pelts by species shipped from Louisiana. Otter and bobcat possession tags provide data on timing and locations of all bobcat and otter harvested in the state.

A total of 486,471 furbearer pelts valued at $2.9 million were harvested during the 1996-97 trapping season. Although the fur industry continued to be plagued by poor pelt prices and low trapper effort, this harvest season did show signs of recovery. The total furbearer harvest increased by over 200,000 pelts and the total value increased by $1.7 million.

Nutria

Nutria continue to be the most important furbearer with a harvest of 327,286 valued at $1.4 million. Although this years harvest is significantly higher than recent years, nutria continue to create problems by affecting sugarcane crops and causing marsh damages in areas of coastal Louisiana.

A study to determine monthly pelt quality of eastern and western nutria was initiated in April 1995. Field collection of nutria was completed in March 1996. This project will evaluate pelt quality and the relationship of mineral content of the hair to mineral content of selected nutria food plants. Twelve male nutria were collected monthly from Sabine National Wildlife Refuge and Salvador Wildlife Management Area. Nutria are processed and pelts sent to Louisiana Tech University for analysis. Analysis and report writing will be completed in 1998.

During May and December 1993 a survey was conducted to assess the impact of nutria feeding activity in the Barataria-Terrebonne Basin. This project was funded by LDWF and the Barataria-Terrebonne National Estuary Program. A total of 91 impact sites, affecting 15,500 acres were located and mapped. Recovery of damaged areas between May and December was less than expected. Additional surveys were conducted in western Terrebonne Parish in the Spring of 1995 and in the Caernarvon Freshwater Diversion Study Area in May and December 1995. The entire Barataria Terrebonne Basin was surveyed in March/April 1996. More than 20,000 acres of marsh was damaged by nutria herbivory along the transects flown in 1996. A coast wide herbivory survey is planned for 1998.

Fox and Coyote

During 1996-97 there were 45 fox/coyote hunting preserves in Louisiana which were established using regulations developed and implemented in 1989-90. A total of 35 coyote trapping permits were issued in 1996-97 to individuals to trap coyotes and sell captured animals to be released in the fox/coyote hunting preserves.

Waterfowl Program

Fur and Refuge Division biologists initiated a 5-year statewide mottled duck banding project in 1994 to estimate several population parameters, including survival rates, movements, and population size. Biologists banded 3,447 mottled ducks during the Summer of 1996 and 1,917 during the Summer of 1997. Pass-a-Loutre, Atchafalaya Delta, and Pointe-au-Chien WMAs, Rockefeller Refuge, federal refuges in Cameron and Plaquemines parishes, and private property in Cameron Parish were utilized as banding sites. New "1-800 #" bands issued by the federal government are expected to greatly increase band reports from hunters. However, this change in band reporting rates may require 2 additional years of banding to obtain survival information.

Watchable Wildlife Program

Three fixed wing aircraft surveys (19 hours) and seven helicopter surveys (46 hours) were conducted during the 1996-1997 bald eagle nesting season. One hundred sixty-five young were produced from 124 active territories during the 1996-1997 nesting season. Aerial surveys began on January 27, 1997, and ended on July 20, 1997. Coastal nesting activity peaked in January and February, while nest activity north of the Coastal Zone peaked in April. Twenty-one new nesting territories were identified and documented during the survey. Nesting territories are appearing throughout Louisiana. New nesting territories were found north of Baton Rouge in East Baton Rouge Parish and at Lake Martin in St. Martin Parish. No new nests were documented in north Louisiana. The remainder of new nests were located in south Louisiana between New Iberia and the Mississippi State line.

Brown pelican nest and fledgling production in 1997 was the best on record since the reintroduction program began in 1968. The numbers of nests which produced fledgling pelicans in 1996 was conservatively estimated at 8,600 and 11,560 in 1997. Six colonies (North Grand Gosier, Last Island, Queen Bess Island, North Island, South Grand Gosier and Wine Island) produced approximately 20,000 fledgling pelicans in 1997. Since 1971, over 89,000 fledgling pelicans were produced by Louisiana reestablished colonies.

Amphibian and Reptile Program

The Louisiana Reptile and Amphibian Task Force met 7 times during the 1996-1997 fiscal year, advising the LDWF on issues related to turtle population demographics, captive care and maintenance of amphibians and reptiles, and on research prospects. During 1996-1997 the Department sold 76 wholesale/retail dealer licenses and 437 collector licenses . License revenues totaled $19,565. Revenues from a one percent excise tax on amphibian and reptile sales produced $13,970 for the Reptile and Amphibian Research Fund.

The USFWS funded a $20,000 Endangered Species Act grant to continue surveys of alligator snapping turtles in southern Louisiana. The USFWS also funded a $9,000 grant to continue evaluation of box turtle populations in southeastern Louisiana.

Research focused on populations and commerce of map, softshell and alligator snapping turtles in light of proposed listing of these commercial species under Appendix II of CITES. Research supported non-listing of the turtles, and as a result none of the proposed species were listed. Other research quantified data on amphibian distribution within the Florida parishes, and on amphibian and reptile community structure in different habitats. Formal talks on research conducted for the RA Program were presented at two academic meetings and at Louisiana State University.

Public outreach work included an elementary school talk, publication of an article on venomous snakes in the *Louisiana Conservationist*, and publication of a book, *Snakes of Louisiana*.

Field survey work on 87 days resulted in recorded observations of approximately 5000 amphibians and reptiles. Cooperative research on amphibian and reptile reproduction, feeding, and distribution was conducted at Louisiana State University, Tulane University and Southeastern Louisiana University. The Louisiana Amphibian Monitoring Program completed its first year, with complete runs of 24 of 62 proposed routes.

Estuarine Fisheries Program

Rockefeller Refuge continued its fisheries monitoring program in conjunction with various habitat management/restoration strategies. Though the primary goal of the Division is habitat management/restoration, personnel are able to strategically allow ingress and egress of organisms into the Superior Canal complex and several management units when habitat integrity will not be compromised.

The growth and movement of various fish species, in response to the adjustments of water control structures, have been monitored since 1972. Initially, blue, channel, and flathead catfish were tagged and released. Redfish were tagged later, followed by largemouth bass beginning in 1991. This year redfish again became a major target species for tagging.

Since 1972, the Fur and Refuge Division has worked cooperatively with the Inland Fisheries Division striped bass project. Striped bass fry are placed in the Rockefeller nursery until they are on feed. Once on feed, the fry are transferred to culture ponds. The fry are grown out to a length of three inches in culture ponds, harvested, and stocked into southwest Louisiana river systems. In 1997, the program released 290,693 bass. Of these, 150,209 were released into the Calcasieu River Basin, and 37,995 were released at Rockefeller Refuge. To date, 2,825,252 fish have been stocked in the Calcasieu River system. The remaining 102,490 were released back into Toledo Bend Reservoir at the request of LDWF Inland Fisheries Division personnel due to the unfortunate low levels of production experienced by the USFWS hatchery in Natchitoches, LA.

PUBLICATIONS/COOPERATIVE RESEARCH/ TECHNICAL ASSISTANCE/ SCIENCE INFORMATION WORK

In addition to publication in science journals, Fur and Refuge Division biologists support research projects of scientists of other resource units, provide extension service to other landowners, and make information available to the public.

Publications

Scientific papers were written on the following topics. The papers were published as conference proceedings or abstracts and as articles in scientific journals.

- Sustaining harvest of Louisiana box turtles.
- When is a ground rattler not a ground rattler?
- A GAP analysis and status report on amphibians in eastern Louisiana.
- Use of wood duck nest boxes by black-bellied whistling ducks.
- Movements and habitat use of subadult alligator snapping turtles (*Macroclemys temminckii*) in Louisiana.
- Lesser scaup-mollusk relationship in Lake Pontchartrain.
- Snake bites.
- Summary of trapping regulations for fur harvesting in the United States and Canada, 1995.
- Bald eagles.
- The Rockefeller Refuge oil spill: a team approach to incident response.
- Relative cost of basic and prealternate molts for male blue-winged teal: nutritional implications of small bodied waterfowl.
- The commercial consumptive use of the American alligator (*Alligator mississippiensis*) in Louisiana: Its effect on conservation.
- Effects of long term corticosterone implants on growth and immune function in juvenile alligators, *Alligator mississippiensis*.
- The application of *in situ* burning to a Louisiana coastal marsh following a hydrocarbon product spill: preliminary assessment of site recovery.
- Light microscopic study of the alligator (*Alligator mississippiensis*) spleen with special reference to vascular architecture.
- Purification, amino acid sequence, synthesis, and receptor selectivity of alligator gastrin.
- A study on biliary ductal system and bile fistula in the American alligator, *Alligator mississippiensis*.

Cooperative Research

Several cooperative studies were undertaken in 1996-1997 with university researchers to further the understanding of alligator physiology.

- Refining nutrition/food supplements for captive juvenile alligators
- Endocrinology studies on effects of insulin, epinephrine, and estradiol on blood sugar, amino acids, and lipid metabolism in alligators
- DNA studies to evaluate social/breeding hierarchy in adult alligators, multiple male parentage, and geographic variation
- Baseline studies on the immune system of the alligator and its role in nutrition/disease of farm raised alligators.
- Co-studies on regulatory mechanisms of temperature dependent sex determination in alligators and eggshell microstructure.
- Studies on nesting/hatchling sex ratios
- Studies on the development of the brain and cardiovascular systems in hatchling alligators).

Food habits of alligator snapping turtles are also being evaluated at Rockefeller Refuge. More than 100 were collected from trappers and lab work is completed. Reproductive tracts have also been dissected for correlation, and a manuscript will be prepared for publication pending data analysis.

University of Southwestern Louisiana fishery personnel completed work on State Wildlife Refuge. An overview of more than a quarter century of collections at the Refuge and analysis of the study on the effect of weirs was presented in a report containing 21 tables and 114 figures, "Overview and Effect of Weirs on Fisheries Organisms at State Wildlife Refuge." This work also resulted in another report "Effect of Marsh Management on Fisheries Organisms: the compensatory adjustment hypothesis." This USL team is continuing analysis of trawl samples collected at Rockefeller by LDWF staff and entering data into computer files. University of Southwestern Louisiana continued working on accretion, sedimentation, and nutrient accumulation rates as influenced by manipulations in marsh hydrology in the chenier plain, Louisiana.

The Fur and Refuge Division continued monitoring the marsh area impacted by the Caernarvon Freshwater Diversion Project for alligator nest production during 1996-97. A post diversion monitoring report was completed in 1997.

The Fur and Refuge Division staff has participated in development of the plan to monitor the Davis Pond Freshwater Diversion Project. Alligator nest counts, vegetative composition, and nutria herbivory will be part of a comprehensive study to determine the impact of freshwater in to the Barataria watershed. This pre diversion monitoring project will begin in January 1998.

A marine fisheries study funded by NMFS began on Atchafalaya Delta WMA by a USL graduate student. LDWF provided support.

The LSU Wetland Biogeochemistry Institute continued research on Marsh Island. The emphasis during this period has been work related to the new experimental management units, examining internal erosion patterns and soil and vegetation changes. During 1994-95 exclosures were constructed in managed and unmanaged study areas to assess the effect of nutria and muskrat herbivory on internal marsh erosion. Field work will continue through 1996-96 and data analysis and report writing should be completed in 1996-97. A new project will be initiated in 1996-97 to study vertical accretion in impounded versus non-impounded wetlands on Marsh Island Refuge.

Research associated with the experimental management units was initiated during this period. Research will require continual monitoring of water level and salinity inside and outside these units as well an annual vegetation transects and periodic aerial photography. Vegetation transects were established in October 1993 and will be repeated annually.

The LSU Wetland Biogeochemistry Institute initiated research to determine the effect of crude oil on fresh and brackish marsh and evaluate burning and cleaners as methods of oil removal. The project is located on the Pointe au Chien Wildlife Management Area.

Technical Assistance

Marsh management/marsh enhancement technical expertise was provided for private landowners in the coastal region.

Rockefeller Refuge staff worked on several major extension activities. They cooperated with state and federal agencies in the continued planning, field investigating, and reviewing of projects identified in the Louisiana Coastal Wetlands Restoration Plan for the Mermentau Basin, and began participating in development of the Coast 2050 Plan.

Rockefeller Refuge staff hosted a Russian delegation associated with Mobil Oil, Inc. and reviewed mineral management procedures and guidelines for Rockefeller Refuge and coastal Louisiana. Environmental protection guidelines developed in Louisiana may be used to minimize impacts associated with mineral development in Russia.

A staff member will attend the IUCN/CSG Steering Committee meeting in Singapore. Numerous resolutions pertaining to the alligator/crocodile industries will be discussed.

Science Information Work

Facilities at the State Wildlife Refuge were also used routinely for educational purposes in 1995-96. A group of DARE students from Vermilion Parish toured the Refuge during this year. The Cooperative Extension Service used the Refuge in conjunction with its youth 4-H Program. The Vermilion Parish School Board also used the facilities to provide parish honor students with an opportunity to learn about the Refuge and marsh management.

Habitat Section

The primary objective of the Habitat Section is to gather and compile data on wildlife and fisheries resources, determine the requirements for conserving the resources, and provide information and technical assistance to governmental entities, industry, and the public. Data are also gathered on the potential impacts of human activities on the resources, providing such technical information to planners and decision makers in advance of execution of projects.

Louisiana continues to lose valuable fish and wildlife resources to development projects of federal, state and local governments and to projects of private enterprise. The Louisiana constitution charges the Department of Wildlife and Fisheries with responsibility "to protect, conserve and replenish the natural resources of the state, the wildlife of the state,...." More specifically, federal, state and local laws and procedures allow the Department to conduct environmental investigations, i.e., the review of proposed projects and determination of possible effects on fish and wildlife resources.

Work during this fiscal year included cooperative efforts with the following proactive government resource units: Barataria/Terrebonne Estuary Program, Water Resources Advisory Committee with DOTD, Groundwater Advisory Committee, Non-point Source Pollution Advisory Committee, Cameron/Creole Project, coastal restoration activities with the Governor's Office, environmental roundtables with the Vicksburg and New Orleans ACOE offices, Louisiana departments of Health and Hospitals and Department of Environmental Quality efforts related to pollution and fish contamination, and mitigation banking.

The workload of the Habitat Section is divided into four units: Environmental Investigations, the Louisiana Natural Heritage Program, the Louisiana Natural and Scenic Rivers Program, and the Urban and Watchable Wildlife Program.

ENVIRONMENTAL INVESTIGATIONS

Investigations staff members reviewed approximately 1,500 state and federal permit applications this fiscal year. Permits were for projects related to alteration of wetlands, freshwater diversion, hurricane protection, navigation, marsh management, airport construction, Community Development Block Grants, Farmers Home Administration grants, flood control, solid waste disposal, hazardous waste disposal, hydropower and other types of dam projects, and coastal restoration.

There are numerous government agencies that the Department works with in conducting environmental investigations. Most important is U.S. Army Corps of Engineers (ACOE).

ACOE is the principle agency promoting navigation and flood control projects in the state and is the permitting authority nationally for wetlands and adjacent waters. As a construction agency and a permitting agency, ACOE requires fish and wildlife resource data.

The Natural Resources Conservation Service and the U.S. Forest Service, of the United State Department of Agriculture (USDA), are required to consider the effects of their projects on fish and wildlife resources. These and other USDA agencies frequently require biological resource data during the project decision-making phase.

The Federal Highway Administration, Environmental Protection Agency, Federal Aviation Administration, Farmers Home Administration, Housing and Urban Development, as well as Louisiana Department of Transportation and Development, Louisiana Department of Natural Resources, Louisiana Department of Environmental Quality, and Louisiana Department of Culture, Recreation and Tourism also require fish and wildlife information during project planning and decision making.

The Department also works with private developers and consultants involved in the permit application process with the above regulatory government bodies.

LOUISIANA NATURAL HERITAGE PROGRAM

Louisiana Natural Heritage (LNHP) staff members also reviewed approximately 1,200 proposed projects for their effects on rare, threatened or endangered species or unique animal communities or plant associations. Project permit applications came from Army Corps of Engineers (ACOE), Louisiana Department of Natural Resources (DNR)/Coastal Restoration Division, and Louisiana Department of Transportation and Development (DOTD) as well as the other agencies listed above under Environmental Investigations.

Permit review and judicious approval protected numerous sites housing rare / threatened /endangered (r/t/e) species of animals and plants and unique habitats. LNHP review also saved industry money by recommending modification early in the planning stage of proposed development activities.

LNHP concluded the multi-year survey of the natural communities of Kisatchie National Forest.

They continued to implement the management plan for Lake Ramsay Wildlife Management Area. During fiscal year 1996-97 they conducted one controlled burn encompassing 80 acres for managing rare plant species and longleaf pine flatwood plant communities on the area. LNHP staff members progressed, in cooperation with Louisiana State University, on the multi-year hydrologic research project on the WMA.

During fiscal year 1996-97 field work, LNHP staff discovered new occurrences of approximately 59 species of r/t/e plants and animals and 3 exemplary natural communities. Additionally, 450 current records on r/t/e species and unique biological elements were verified in the field and updated. These records are on 306 species of r/t/e plants, 150 r/t/e species of animals, 49 exemplary natural communities, and 418 wading bird colonies.

Three-hundred and nineteen colonial waterbird nest sites were surveyed throughout Louisiana. New colonies were mapped; current records of occurrences were verified and updated. Data were compiled on a software program developed to track elements of special concern and used nationally by the Heritage Program.

LNHP administers the Section 6 cooperative agreement with the U.S. Fish and Wildlife Service which improves the ability to manage federally listed animals. Through this agreement, the federal government reimburses the state for up to 75 percent of the cost of endangered species research and management. Research conducted during fiscal year 1996-97 included studies on the black bear, the pallid sturgeon, American burying beetle, mussels in the Tensas River, the Louisiana Pine Snake, alligator snapping turtle, dusky gopher frog, Louisiana pearlshell mussel and piping plover.

Work was continued on USFWS status survey reports for two federally listed plants in the state: Louisiana quillwort (Isoetes louisianensis) in St. Tammany and Washington parishes; American chaffseed (Schwalbea americana) in central Louisiana.

Staff also participated in six Christmas Bird Counts which are nationally coordinated by the Audubon Society.

LNHP staff members made scientific presentations at various conferences and symposia, contacted landowners to promote habitat and rare species conservation, cooperated with The Nature Conservancy of Louisiana in various conservation projects, and worked with LDWF Forest Stewardship Program on property inspections and development of management plans. They also continued the development of a vegetation classification for the La GAP project in cooperation with the National Biological Survey. Other projects that LNHP staff worked on during fiscal year 1996-97 include; longleaf flatwoods inventory, TNC pine flatwoods wetlands mitigation bank in southeast Louisiana, oversaw implementation of two stewardship forest plans written by an LNHP staff member, and provided reforestation guidelines to State Parks for Fontainbleu State Park.

During fiscal year 1996-97, LNHP staff made 18 presentations at schools, state parks, civic organizations, and television stations. In addition, the LNHP staff represented the department on DEQ's Environmental Indicators Task Force, and produced the Wild Louisiana Stamp.

LOUISIANA NATURAL AND SCENIC RIVERS PROGRAM

During fiscal year 1996-1997, the Scenic Rivers staff conducted or participated in field trips and reconnaissance on 9 scenic rivers. GPS was used for collection of location information on access, points of interest and points and areas of special concern on the streams visited. This collection of detailed, geo-referenced information (GPS data) about the individual streams will be incorporated into the specific management plans of each stream as part of the plans' updates.

The Scenic Rivers staff has taken an active role in educated and informing permit applicants, Enforcement officials, state and federal agencies, and the general public about the Scenic Rivers Program and the provisions of the Scenic Rivers Act. There has been an ambitious effort to work with several large timber companies toward reaching Scenic Servitude agreements that offer further protection for Scenic Rivers from silviculture on adjacent private lands.

The Scenic Rivers staff reviewed 19 permit applications and issued 14 permits.

URBAN AND WATCHABLE WILDLIFE UNIT

The Habitat Section, Urban Wildlife Program has been operating for three years. The program is staffed by one biologist and has no funds specifically allocated to the program. The program serves two functions within the Department; urban wildlife habitat conservation and education, and coordinates the nuisance animal control program. The program provides an extension service type role, educating homeowners and other landowners in urban, suburban and residential areas on wildlife issues. These issues include habitat conservation in developing areas, landscaping to attract wildlife, and other wildlife related topics. Various publications have been developed and are available to the public free of charge.

The program provides assistance to corporate landowners interested in enhancing wildlife habitat on corporate property. The program has assisted companies such as Vulcan Chemicals and PPG achieve certification from the Wildlife Habitat Council, an organization that recognizes corporate efforts to develop and enhance wildlife habitat. The biologist is serving as a wildlife habitat consultant in a major habitat project with the City of West Monroe. The project involves a 70 acre stormwater detention basin that is being developed to improve water quality and reduce non-point source pollution, and at the same time, enhance wildlife habitat. The project is the largest of its kind in the Southeast U.S and will serve as a model for other cities to follow.

The biologist has developed several slide presentations and gives talks to groups on urban wildlife topics. The groups range from elementary and middle school classes and clubs to senior citizen groups and local garden clubs.

The Urban Wildlife Program utilizes the Waddill Wildlife Refuge in Baton Rouge for various urban wildlife projects. A backyard wildlife habitat demonstration site has been developed to show homeowners how to landscape with native plants to attract wildlife. The site includes a butterfly/hummingbird garden, a pond, a snag, and numerous plantings selected for their high wildlife value. Other projects at the refuge include a nature trail system under development and numerous nest boxes that are monitored each breeding season.

In 1997, a Memorandum of Understanding was developed between this Department and the Department of Agriculture and Forestry which allows structural pest control operators licensed in vertebrate pest control to control squirrels inside homes and buildings. This agreement gives homeowners access to pest control services that were previously not available due to the fact that squirrels are protected.

The Urban Program issues nuisance animal control permits and Nuisance Wildlife Control Operator permits. In 1997, 137 nuisance animal control permits, and 21 nuisance wildlife control operator permits were issued. The nuisance animal control permit system is being updated at the present time to a computerized permit system. Under the new system, permits will be able to be issued from any Wildlife & Fisheries' office in the state through our intranet. This will be a major improvement over the current system. Permit applicants will be able to receive a permit within hours instead of waiting as much as a week. This system will also provide us with instant access to permit records. The Nuisance Wildlife Control Operator program is also under revision. Rules and regulations are being developed as well as a testing system for licensing control operators. This is to encourage privatization of the nuisance animal control field, and alleviate some of the burden placed on the Department.

OFFICE OF FISHERIES

The Office of Fisheries is comprised of two divisions, Marine Fisheries and Inland Fisheries.

MARINE FISHERIES DIVISION

The Marine Fisheries Division is charged with management of the full range of Louisiana's marine resources. Division responsibilities are categorized as Fisheries Management Programs and Habitat Protection Programs.

FISHERIES MANAGEMENT PROGRAMS

Fisheries Management Programs include Shellfish Management, Mollusc Management, Finfish Management, and the Lyle S. St. Amant Marine Laboratory.

Shellfish Management

The Marine Fisheries Division continued its long-term fishery independent trawl sampling throughout coastal Louisiana. Data from these samples were used to set season frameworks for both the fall and spring inshore shrimp seasons and the winter offshore shrimp season. Additionally, these same data were used to recommend season extensions and special shrimp seasons.

Shrimp

The 1996 Fall Shrimp Season opened in Louisiana's inshore waters on August 19, 1996 and remained open until the third Monday in December. The Secretary extended the season in Breton and Chandeleur Sounds until April 1, 1997 in an effort to harvest pink shrimp which are usually present in that area during late winter and early spring. A few pink shrimp were harvested during this extension , but catches were generally poor. The fall and early winter seabob production was very good.

The 1997 Spring Shrimp Season opened in Zones 1 and 2 on May 19, 1997 and on May 26 in Zone 3. Inshore brown shrimp production was down as compared to the last three years and below the long-term average.

Crabs

The Crab Task Force addressed several issues, included limited entry, ghost traps, and crabber/shrimper user group conflicts. Several major crab bills (escape rings and increased penalties for possession of excessive numbers of undersize crabs) were passed during the spring 1997 legislative session; in addition, several other crab bills, including limited entry for the crab fishery, biodegradable panels, and dual penalties for possession of undersize crabs, were introduced but not passed. The Crab subcommittee of the Gulf States Marine Fisheries Commission began revising the regional blue crab management plan. The Department and LSU Sea Grant cooperatively held a series of workshops across coastal Louisiana on the blue crab resource.

Mollusc Management

Oyster

The 1996/97 oyster season on the public oyster seed grounds and the Hackberry Bay and Bay Gardene Oyster Seed Reservations opened one-half hour before sunrise September 4, 1996. No Oyster Seed Reservations were closed during the 1996-97 oyster season. An area of the public grounds east of the Mississippi River in the Black Bay area was opened for sacking only as prescribed by Act 46 of the 1992 Legislative Session. These public oyster grounds seasons were extended until April 30, 1997.

Public grounds in Calcasieu and Sabine Lakes opened one-half hour before sunrise October 16, 1996 and remained open until one-half hour after sunset on April 30, 1997. The Secretary was authorized by the Commission to extend the season to compensate for those days lost due to health closures.

Oyster production for 1996-97 continued on an above average trend; however, the season on the public grounds was plagued with closures. There were closures because of oyster mortalities, as well as health closures east of the Mississippi River because of the Red Tide organism.

Finfish Management Program

Monitoring

Bag seines, experimental gill nets, and trammel nets were used coastwide to sample various year classes of estuarine dependent fish as part of the Department's long-term finfish monitoring program. Gill net samples were taken semi-monthly from April through September, and monthly from October through March; trammel net samples were taken monthly from October through March, and seine samples were taken monthly from January through August, and semi-monthly from September through December. Hydrological and meteorological parameters were measured each time a biological sample was taken.

Spotted Seatrout

The commercial season for the harvest of spotted seatrout in state territorial waters was opened on November 18, 1996 and ended at midnight April 30, 1997 when the season was statutorily closed. Harvest with strike nets was statutorily closed on March 1. Preliminary estimates indicate that harvest for the 1996-97 commercial spotted seatrout season was 938,468 pounds.

Recreational harvest of spotted seatrout in 1996, as measured by the Marine Recreational Fishery Statistics Survey, was above average for the period since the imposition of the present length and creel limits of 1987. The harvest was estimated as 6,013,222 fish, with an average weight of about 1.25 pounds. The average size was slightly above the mean of other years since 1987.

Red Drum

Red drum has had official game fish status in Louisiana since 1988. Recreational harvest of red drum in 1996, as measured by the Marine Recreational Fishery Statistics Survey, was the second highest recorded for the period since the imposition of the present length (16-inch) and creel (5/person) limits in 1988. The harvest was estimated as 2,435,351 fish, with an average weight of about 4.55 pounds. The mean size was above average for the period since 1988. The magnitude of the recreational harvest was attributed to the large 1993 year-class.

Menhaden

Environmental data and juvenile menhaden data from LDWF trawl samples have been used since the mid 1980s to forecast Louisiana menhaden landings. Using multiple regression predictive models developed from a recent research project funded by the menhaden industry, the Department presented a preliminary 1997 harvest forecast to menhaden industry representatives at the Gulf States Marine Fisheries meeting in October 1996. Anticipated 1997 fishing effort, juvenile menhaden indices, environmental data and other commercial harvest statistics were used as input data.

Hydrological/climatological conditions during the winter of 1995-96 were favorable for menhaden recruitment while juvenile menhaden abundance indices were above average. Above average age-1 and below average age-2 year classes were projected to enter the fishery in 1997. The projected 1997 landings were in the range of 400,000 to 460,000 metric tons; actual 1997 landings were 420,000 metric tons.

Black Drum

Commercial harvest figures for black drum over 27 inches were obtained from black drum permit reports by commercial fishermen. Harvest of 16 to 27 inch black drum was obtained from wholesale-retail dealer landing reports, after adjusting for their bull drum landings. For fishing year September 1996 through August 1997 preliminary estimates indicated a harvest of 1,532,455 pounds of 16-27 inch black drum. This compares to an estimated harvest of 683,509 pounds in fishing year 1994/95.

Preliminary estimates of bull drum harvest for fishing year 1996-97 indicated 18,986 drum over 27 inches were harvested. This compares to an estimated harvest of 41,215 in fishing year 1995/96.

Recreational harvest of black drum in 1996, as measured by the Marine Recreational Fishery Statistics Survey, was slightly above average for the period since the imposition of the present length (16-inch total length) and creel (5/person) limits in 1989. The harvest was estimated as 300,189 fish, with an average weight of about 3.01 pounds. The mean size was near the minimum recorded for years under present regulations.

A standardized Marine Fisheries Division data system provided for timely entry, verification and access to Department data. Managers utilized this information to assist in setting dates for opening and closing seasons, quota monitoring, and assessment of immediate impact of catastrophic events.

Marine Fisheries Division personnel continue to collect trip interview information from commercial fishermen which provides biological information on species of fish and shellfish caught in Louisiana waters. The federally funded program focused on species of greatest state and federal interest.

Division personnel updated stock assessments for spotted seatrout, red drum, black drum, mullet, southern flounder and sheepshead in 1997.

Louisiana Artificial Reef Program (LARP)

Twelve obsolete oil platforms were installed as artificial reefs during fiscal year 1996-97. LARP was established in 1986 to use select, obsolete oil and gas platforms to provide habitat for a multitude of Louisiana's coastal fishes. Federal law and international treaty require oil exploration companies to remove these platforms one year after production ceases. LARP has provided an opportunity for oil companies to contribute to maintenance of fisheries habitat.

Since its inception, a total of twenty-three petroleum companies have participated in the program and donated the jackets of 71 structures which were installed at select locations as artificial reefs. In addition to this material, participating companies also contributed over $9 million to the Louisiana Artificial Reef Trust Fund. The reef program also developed reefs at inshore locations, primarily low profile reefs composed of shell.

Lyle S. St. Amant Marine Laboratory

The Marine Laboratory's primary mission is to conduct the research required to manage Louisiana's marine fisheries. Laboratory facilities are also made available for the use of the Department and non-department entities engaged in fisheries management and enforcement, coastal restoration, and marine education. The Enforcement Division's Strike Force occasionally uses the lab as a base of operations. Several LSU researchers make use of Laboratory facilities. LSU's Sea Grant utilizes the facilities for the Marsh Maneuvers Summer Program and for teacher workshops.

The major marine finfish research project conducted during the 1996-97 fiscal year, was the generation of age, growth, and fecundity data needed for age-structured stock assessments of black drum, sheepshead, southern flounder, spotted seatrout, red drum, and striped mullet. Federal funding for this project was made available through Sport Fish Restoration funding.

Age and Growth Lab

To increase accuracy of stock assessments, the Division has instituted an extensive, long-term project for obtaining age, growth, and fecundity data on important marine finfishes.

Work progressed during the fiscal year on black drum, sheepshead, southern flounder, spotted seatrout, red drum, and striped mullet; personnel obtained fish measurements and otoliths (ear bones) by fishery independent sampling and by sampling the commercial and recreational fisheries. Otoliths were removed from the fish, sectioned, and examined for annular rings (indicators of age and other fundamental information). This was accomplished using the latest computer image-analysis technology.

Cooperation continued with Louisiana State University's Coastal Fisheries Institute. The Institute, which has operated age, growth, and fecundity laboratories since 1985, continued to provide consultation and verification of the accuracy of the Laboratory's aging techniques. Institute researchers also investigated new technologies and taught those technologies to Laboratory personnel.

During the 1996-97 fiscal year the age analysis of 456 black drum, 500 sheepshead, 345 southern flounder, 1,407 spotted seatrout, 467 red drum, and 436 striped mullet was completed. Sampling protocol for fecundity studies of these fishes was established. Ovaries from specimens of each species were preserved at the Laboratory then delivered to the Coastal Fisheries Institute for histological examination.

Cooperative Fisheries Statistics Program

The Cooperative Fisheries Statistics Program is an ongoing cooperative program, designed to coordinate collection of commercial landings and biostatistical data by state and federal agencies. The Program has two tasks, to collect the quantity of individual species landed, and to collect catch/effort from the fishery and length frequency of species in the fishery. Information collected through the program is used by stock assessment scientists and managers to provide proper management of marine fisheries. The National Marine Fisheries Service provides funds to the states through the Gulf States Marine Fisheries Commission to collect long-term, standardized data on the commercial fishery. The program has been in existence since the early eighty's and has provided a wealth of information to manage marine fisheries resources.

HABITAT PROTECTION PROGRAMS

Habitat Protection Programs include: the Southeast Area Monitoring and Assessment Program (SEAMAP), Hydrological Monitoring, the Gulf-Wide Information System (G-WIS), environmental Monitoring of the Louisiana Offshore Oil Port (LOOP), Oil Spill Response, Seismic, Coastal Wetlands Protection and Caernarvon Freshwater Diversion Monitoring.

SEAMAP - Southeast Area Monitoring And Assessment Program

SEAMAP is an ongoing cooperative program. It is designed to facilitate the coordinated collection, management and distribution of fishery-independent biological and environmental data by state and federal agencies. The National Marine Fisheries Service provides funds to the states through the Gulf States Marine Fisheries Commission to collect long-term, standardized data on the condition of living marine resources and their environment. Fishery-independent data are those collected apart from a directed recreational or commercial fishery, and are essential to understanding the responses of fishery stocks to exploitation and management measures. Data are collected on fishery stocks that are subject to cooperative state and federal management. The study area includes the estuarine and marine waters of Louisiana as well as marine waters within the US Exclusive Economic Zone (EEZ). SEAMAP activities in Louisiana include summer, autumn, and winter trawl surveys conducted in conjunction with zooplankton and environmental resources surveys. Department personnel also participated in developing Gulf-wide priorities and methods for data collection.

Coastal Monitoring

The Department began collecting constant records of salinity, water temperature, and tide level in 1958 to support fishery management decisions. Data are collected from 10 stations located along the coast from the Pearl River to Calcasieu Pass. Instruments record these data at 20 minute intervals. Processed data are used, for example, to determine areas of suitable nursery grounds, season opening dates, forecast fisheries production, and anticipate and respond to natural disasters that impact fisheries. During FY 1996-97 the cooperative program between the Louisiana Departments of Wildlife and Fisheries and the US Geological Survey (USGS) continued. Field data are collected by USGS, and finished data are provided to the Department. In FY 1996-97 two constant recorder sites located in North and South Barataria Bay were upgraded to near-realtime (4 hour lag) data transmission capability. This year an additional 7 stations were converted to near-real time. Data from these locations are transmitted via satellite from the instrument in the field to the USGS office in Baton Rouge and down loaded to the Department's data base via the Internet.

G-WIS - the Gulf-Wide Information System

The federal Oil Pollution Act of 1990 mandated a number of actions intended to protect the nation's natural resources from the harmful effects of oil spills. Among these, the U.S. Minerals Management Service (MMS) was instructed to prepare a comprehensive listing of sensitive environmental resources along the nation's coasts so that offshore oil and gas producers could incorporate protection strategies into their spill contingency plans. The Department, working under a grant from MMS and in cooperation with other state and federal agencies, universities, and industry, is incorporating its extensive databases into the G-WIS.

When completed the G-WIS will be an interactive, computer based system using Geographic

Information System (GIS) technology that will give spill responders and resource managers access to up-to-date natural resource information. The computer-generated "maps" will show users the locations of sensitive resources and other environmental conditions they are likely to encounter in responding to a particular spill. The Department's activities in the first phase of the project are to convert existing data sources to formats compatible with the GIS. During FY 1997-98 a pilot project will incorporate all data types for a test area prior to expanding the databases statewide.

Louisiana Offshore Oil Port

Environmental monitoring began in 1978 to measure the environmental impacts of LOOP LLC's operations to the coastal, estuarine, and marine habitats and biological communities near their facilities. The monitoring program was designed to address specific objectives. These are to (1) obtain seasonal environmental and ecological data so that conditions existing during LOOP's operation can be related to historical baseline conditions, (2) detect any adverse alterations or damage to the environment so that corrective action can be taken as soon as possible, (3) obtain sufficient data to determine causes of environmental damage or alterations so that responsibility can be properly placed, and (4) provide information to evaluate long- and short-term impacts of the project.

From 1978 through 1995, Department biologists collected environmental and biological data to address the monitoring objectives. Shrimp, groundfish, benthic invertebrates, larval fish and commercially important crabs were collected and data concerning species composition, distribution, and abundance were recorded. Chemical parameters of the water were measured, and constant data records were taken of rainfall, water temperature, salinity and tide level. Sediment samples were analyzed for presence of petroleum. During FY 1995-96 an internal and external program evaluation was begun under the Direction of the Environmental Directors (Executive Director of the Louisiana Offshore Terminal Authority, the Secretary of the Department of Wildlife and Fisheries, and the LSU Sea Grant College Dean) and supervision of their technical advisors, the Program Review Committee. The sampling program was suspended by the Environmental Directors in June 1996 pending the outcome of the evaluation process. The evaluation is scheduled for completion in FY 1997-98. Analysis of all the data collected since the beginning of field data acquisition in 1978 will provide for a re-design and update of the program to ensure its compliance with mandated objectives.

Oil Spill Response

The Department's Oil Spill Task Force continued in 1996-97 to develop and implement plans to protect and restore the State's wildlife, fishery, and habitat resources from the adverse effects of oil spills. Department biologists participated in developing priorities to protect natural resources for the Morgan City Area Contingency Plan, and the curriculum for a state-federal workshop at Rockefeller Refuge on the impacts of oil spills to Louisiana's coastal resources. Department staff also wrote and presented a paper at the International Oil Spill Conference about the Rockefeller Refuge oil spill marsh burn, and worked with a coalition of state, federal, industry, and private interests in developing state rules for Natural Resource Damage Assessment.

A blowout in November of 1996 on the Attakapas Wildlife Management Area in St. Mary Parish resulted in injuries to public trust natural resources: a forested wetland was impacted. After a cooperative evaluation of the potential impact of the spill, the Department, other state natural resource trustees, and the spiller, Pioneer Natural Resources, agreed to reforest 30 acres at the spill site. The work will be conducted in FY 1997-98.

On May 16, 1997, a Texaco pipeline rupture resulted in a spill in Lake Barre and portions of the surrounding marsh, in Terrebonne Parish. The Department worked with state and federal natural resource trustees and Texaco to develop a cooperative program for evaluating the impacts of the spill. In an effort to keep the citizens of Terrebonne Parish informed of the progress of the evaluation and restoration effort, Department biologists also participated in public meetings in Houma. The evaluation effort will continue in FY 1997-98 with the goal of identifying injuries to public resources and restoring them.

Department staff continued to work with other natural resource trustees to evaluate injuries resulting from the May 26, 1996 gasoline spill on

Blind River near Gramercy.

Seismic Monitoring

The Seismic program's mission is the protection of oysters, fish, shrimp, and other wildlife from possible loss or damage due to geophysical exploration. In 1996-97, the oil and gas industry continued aggressive geophysical exploration programs. The seismic section continues to monitor these activities and develop new ways to reduce their impact. Section personnel developed proposed revisions to the seismic regulations to better enable the section to protect wildlife and fishery resources. The staff held a series of meetings during the spring to facilitate cooperation between shrimpers and seismic operators. Some of the ideas discussed at these meetings have been incorporated into the revisions. In addition, the staff have collaborated in research and monitoring programs designed to test the effects of seismic activity on the reproductive success of bald eagles and waterbirds.

Coastal Wetlands

In 1997, the Marine Fisheries Division continued to work with the state Wetlands Conservation and Restoration Task Force and the federal Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Task Force in developing projects and strategies for slowing the rate of coastal wetlands loss and preserving Louisiana's fisheries production. Division personnel have represented the Department in a major new restoration planning effort within CWPPRA, the Coast 2050 Initiative, to develop an integrated multiple use approach to wetland ecosystem management.

A biological monitoring plan for the Davis Pond Freshwater Diversion Project has been established to document the effects of the project on fisheries. Monitoring will start in 1998 to determine pre-project conditions in preparation for project operation in year 2000. Long-term monitoring of the effects of the Caernarvon Diversion Project (first operated in 1991) is being continued. Additionally, Division personnel serve with the Interagency Working Groups of both projects to set policy for their operations.

Marine Fisheries Division personnel have continued working with agency and industry representatives to develop a mitigation procedure for oyster lease holders that may be adversely impacted by coastal restoration projects.

Marine Fisheries Division personnel work in many roles with the Gulf of Mexico Fisheries Management Council. In 1996, the Magnuson-Stevens Fishery Management Act was amended to include Essential Fishery Habitat protection provisions, and Division personnel have represented Louisiana as these provisions are developed.

INLAND FISHERIES DIVISION

The Inland Fisheries Division manages fish populations and habitats for the conservation and improvement of sport and commercial fishing primarily in freshwater areas of the state. Division responsibilities are divided into two major categories: Fisheries Management and Aquatic Habitat Management.

FISHERIES MANAGEMENT

Lake Management

Fisheries managers estimate relative abundance, size class structure , and species composition of fish population and physicochemical characteristics of the water in approximately 60 lakes and streams annually. All lakes are sampled in a similar manner so that data can be compared. Sampling techniques include:

Electrofishing samples are taken in the spring and fall to provide a measure of abundance. Only largemouth bass and crappie are collected in the spring while all species are collected in the fall. Standard sampling time is 900 seconds per station.

Gill net samples are taken during winter primarily to determine relative abundance and length frequencies of gizzard shad, striped bass , hybrid striped bass, commercial and rough fish species. Monofilament nets with meshes from 2.5 to 4.0 inches (bar mesh) are set at dusk and gathered at sunrise. Each fish taken is identified, weighed and measured. This sampling method provides gear selectivity, species composition and length frequency information.

Shoreline seine sampling measures reproductive success of sunfish including bass and bluegill. Year-class strength, species composition and prey availability are provided by this sampling effort. Samples are conducted during spring and summer and consist of one quadrant haul at each sample site using a 25-foot by six foot seine.

Frame nets are used to measure relative abundance and length-frequencies of crappie and other sunfish. Species composition, age and growth and length weight relationships are determined. Sampling is conducted for a minimum of 48 hours with two nets at each station.

Water quality samples are taken at all sampling stations. Water temperature, pH, dissolved oxygen concentration, conductivity, oxidation/reduction potential and water body depth are measured.

Creel samples are conducted on 5 water bodies. This sampling method puts the fisheries manager in direct contact with the fishermen. Information collected includes species sought, species caught, distance traveled, time fished, number caught and released, and a measurement of all fish harvested. The Inland Fisheries Division also monitors other fish species including paddlefish and sturgeon. The Division continues to collect baseline data on relative abundance, habitat requirements, movements and population estimates. Paddlefish were again artificially propagated and approximately 7,560 were stocked in Louisiana waters. All paddlefish stocked were implanted with coded wire tags before release. Sturgeon movement, age and growth, habitat assessment and population estimates will continue in 1997-98 .

The Division is also responsible for conducting investigations into fish kills in freshwater. Area impacted and losses are recorded at each kill. Approximable 40 kills were worked this year with no large mortalities noted.

Fish stocking when used as part of a complete fishery management program , can enhance and supplement a fishery and add to the success and enjoyment of fishing. Fish stocking programs must be well thought out and consider many factors, most important of which is habitat management.

1997 Stocking

WATERBODY	SPECIES	NUMBER
Grand Bayou	FLMB	31,475
Grand Bayou	Channel catfish	52,459
Corney Lake	Native Black bass	165,352
Corney Lake	Channel catfish	29,562
Caney Lake	FLMB	111,238
Ouachita River	Striped bass	4,926
Moon Lake	Striped bass	20,554
Toledo Bend	FLMB - fry	50,349
Toledo Bend	Striped bass - fry	549,959
Toledo Bend	Striped bass	249,370
Toledo Bend	Gulf Coast Striped bass	14,844
Sabine River	Paddlefish	7,295
Rodemacher Lake	FLMB	16,587
Hardwater Lake	Blue catfish	7,583
Indian Creek	Gulf Coast Striped bass	20,815
Iatt Lake	Blue catfish	10,000
Concordia Lake	FLMB	117,990
Tensas NWR	FLMB	2,942
Vernon Lake	FLMB	68,440
Vernon Lake	Channel catfish	20,755
Calcasieu Lake	Striped bass	150,208
Rockfeller NWR	Striped bass	37,995
Sabine NWR	FLMB	176,706

Spanish Lake	FLMB	70,296
Chicot Lake	FLMB	19,178
Atchafalaya Basin (south)	Blue catfish	21,000
Atchafalaya Basin (south)	Channel catfish	17,460
Atchafalaya Basin (south)	Paddlefish	576
False River	FLMB	125,145
City Park/University Lake	FLMB	6,076
City Park/University Lake	Channel catfish	8,640
City Park/Waddill	FLMB	1,250
Ruddock I-55 Canal	FLMB	20,238
Tickfaw/Natalbany/Blood River	FLMB	14,000
Diversion Canal/Amite River	FLMB	16,250
Bayou Francois/New River	FLMB	7,500
Lake Verret	FLMB	10,000
Lac Des Allemands	FLMB	22,981
Tangipoha River	FLMB	5,300
Blind River	FLMB	9,800
Caernarvon System(St. Bernard Parish)	FLMB	94,235
Pearl River	Gulf Coast Striped bass	25,200

AQUATIC HABITAT MANAGEMENT

Aquatic Plant Control Program

During fiscal year 1996/97, the aquatic plant control program provided substantial benefits to millions of Louisianians. Responsibilities included monitoring water bodies for non-native, invasive vegetation, providing technical assistance, and continuous investigation into more effective and environmentally safe methods of vegetation control. Aggressive treatment of affected waters continued this fiscal year in an effort to restore and improve the aquatic habitat and natural desirable balance of plants and fish. Controlling nuisance plants also provided boating access in many public waterbodies statewide.

Twenty-four lakes were type-mapped by personnel conducting water body monitoring work to determine and evaluate the encroachment of non-native nuisance plant species. Species composition and density of aquatic vegetation were obtained on 8 public lakes.

Aquatic vegetation investigations were made by personnel to determine the status of aquatic weed infestation on 27 lakes. The primary objective of this work was to obtain accurate records of aquatic weed populations in these lakes. As a result of these investigations, management recommendations were made for 11 lakes, three of which underwent drawdown procedures.

Biologists provided advice and technical assistance to private and municipal pond owners on aquatic vegetation management problems. This popular extension program also provides aquatic plant identification assistance for the public on request.

Ongoing research projects of the Aquatic Plant Control Program include evaluation of new herbicides to determine their availability and effectiveness for use in aquatic weed control and investigations into the affects of environmental conditions and water fluctuations on hydrilla, as well as evaluations of chemical, biological and mechanical methods of its control.

Water Hyacinth Control

Crews utilizing boats, airboats, mudboats and roadside spray units effectively applied herbicide to 24,810 acres of Louisiana's freshwater wetlands infested with water hyacinths. Another 8,787 acres were treated by helicopter for a total of 33,597 acres.

During the year, limited applications of specialized herbicides were used to relieve unusual and severe infestations of aquatic weeds in Bayou Desiard, Lake Bistineau, Lake Bruin, Lake St. John, Blind River, Lake Boeuf, Lake Martin and other areas. These applications were temporary for boating access and habitat improvement measures and served to familiarize local residents with safe and effective use of aquatic herbicides.

Hydrilla Control

Hydrilla, an invasive exotic submersed aquatic plant that was discovered in Louisiana in 1973, is now spreading into many areas of the state with the potential of becoming a more serious and expensive pest than the water hyacinth.

In June 1990, the Department initiated a herbicide application program in an effort to eradicate hydrilla from Caney Creek Reservoir, a 5,000 acre impoundment located in Jackson Parish. Subsequent to expenditures in excess of $200,000 for herbicide control with unsatisfactory results, and noting the infestation increasing from 43 acres to 1500 acres in just over 3 years, biologists recommended stocking triploid grass carp. During the 1993-94 fiscal year, 8 fish per vegetated acre (11,968) were stocked in Caney Creek Reservoir. First year results of on-site sampling and field investigations to evaluate the effectiveness of triploid grass carp in controlling hydrilla indicated an approximate 10% increase in total area of aquatic plant infestations. Second year results indicate almost complete control without eradication of hydrilla and other plants. A September 1997 survey revealed a 8.5 percent vegetation coverage. Aquatic Plant Research and Control Section staff advised the Inland Fisheries Division administrator that if additional vegetation coverage was desired, the triploid grass carp population would have to be reduced. Also mentioned was that if fish removal was successful and vegetation coverage did increase, hydrilla would become the primary aquatic plant species in Caney Creek Reservoir. Fish Section personnel preferred at least 15 percent coverage therefore, the decision to implement a grass carp removal program was approved by the division administrator. Staff will continue monitoring Caney Creek Reservoir and will make additional recommendations, if necessary, in 1997.

In the early 1990s, Lake Rodemacher (Cleco Lake) was surveyed and a stocking recommendation developed for the utilization of triploid grass carp as a biological control agent for 1500 acres of hydrilla. In March 1993, ten triploid grass carp (15,000) per vegetated acre were stocked into this 3,000 acre cooling reservoir located in Rapides Parish. Field evaluations of the hydrilla infestation in August 1994 resulted in the recommended stocking of an additional 5 triploid grass carp (8,100) per acre the following November. August 1995 observations necessitated a second supplemental stocking of 9,250 fish in October 1995. In June 1996, it was determined that a total stocking rate of 20 triploid grass carp per vegetative acre was required to achieve an acceptable level of hydrilla control in Lake Rodemacher. Evaluations in 1994 of the hydrilla infestation in Lake Rodemacher resulted in a supplemental stocking of 8,100 triploid grass carp. Evaluations and recommendations will continue through 1999.

Biologists have previously investigated and verified reports of hydrilla infestations in Lake Martin, Henderson Lake, Two O'Clock Bayou, Miller's Lake, Spanish Lake (Iberia Parish), False River, (Spring Bayou WMA), Black Lake (Natchitoches Parish), Spanish Lake (Iberville Parish), Shad Lake (Larto Saline Lake Complex), Caddo Lake, Lake Bistineau, Iatt Lake, Flag Lake, Cross lake and Smithport. During 1997, hydrilla was found to occur in Ivan lake. In cooperation with personnel of the U.S. Army Corps of Engineers, a close watch was kept on the density, environmental impact and rate of spread of these introductions in Louisiana waters.

Another more recent invasive exotic introduction is salvinia. This typical newcomer occurs throughout south Louisiana including the Atchafalaya Spillway. It is being monitored very closely and efforts will be made to determine its effect, if any, on fish, fur bearers, waterfowl and boating access.

Public Access and Boating Facilities.

The objective of this project is to develop and maintain boating and fishing facilities that provide access to Louisiana waters. The program is largely funded by the federal Sport Fish Restoration Fund, made available through the Wallop/Breaux Amendment of 1986. By law, a minimum of 12.5 percent of the Sport Fish Restoration Fund allotted to Louisiana each year must be spent on boating access to fresh and salt waters. Local municipalities provide match for projects in their areas. Consequently, very few dollars must be drawn from the Department's operating fund. Facilities include boat ramps, fishing piers, and water control structures which manage the hydrology of aquatic habitat. Since 1986, the Inland Fisheries Division has enrolled 59 projects under the program. A total of 51 structures have been completed, 10 of these in fiscal year 1996-97, five structures were under construction this fiscal year; planning was continued on five others. An additional 41 boat ramps are routinely inspected and maintained. Four projects were deleted from the program during the year because of non-compliance to construction initiation.

Public Access Facilities for Boating and Fishing Completed 1996-97
Quintana Canal Launch, Phase II
Bayou DeSiard Launch
Jack Miller's Landing Launch
Frenier Launch
Vernon Lake Channel Clearing
Lockport Boat Launch
Leighton Boat Launch
Kincaid Reservoir Channel Marking
Golden Meadow Boat Launch — Phase II
Mandeville Harbor — Phase II

Public Access Facilities for Boating and Fishing Under Construction 1996-97
Spanish Lake Renovations
City Park Lakes Renovation
Grand Isle Fishing Pier
Reserve Boat Launch
Morgan City Fishing Wharf

Public Access Facilities for Boating and Fishing in Planning Stages 1996-97
Toledo Bend Fishing Pier
Fort Pike Boat Launch
Bayou Des Allemands Boat Launch

Public Access Facilities for Boating and Fishing Completed Prior to 1996-97
Lake Verret Launch
Bayou Vermilion Launch
Lake Dautrieve Launch
Mandeville Harbor Launch
Cotile Lake Launch
Belle River Landing Launch
Krotz Springs Launch
Cross Lake Launch
Bayou Bonne Idee Launch
Clovelly Canal Launch
Caddo Lake Piers
Iatt Lake Landing
Buhlow Lake Landing
Cotile Lake Buoys
Lake Palourde Marina
Bonnet Carre Spillway Launch
Bayou Pigion Launch
Toledo Bend Boat Lanes, Phase I
Sutton Lake Launch
Upper Grand River Dock
Bayou Sorrel Dock
Toledo Bend Boat Lanes, Phase II
Bayou Benoit Launch
Grand Bayou Reservoir Launch
Schooner Bayou Launch
Quintana Landing Renovation — Phase II
False River Launch
Texaco Canal (Golden Meadow) Launch
Toledo Bend Boat Lanes, Phase III
Freshwater Bayou Launch
Lake Boeuf/Theriot Canal Launch
Indian Creek Reservoir channel Marking
Madisonville Launch
Bayou Teche Fishing Pier
Riverside Drive Boat Launch
Bayou Bonfouca Landing Launch
Berwick Boat Launch
Sabine River Boat Launch (North)
North Park Launch
Chicot Lake Fishing Pier
Lac Des Allemands Launch